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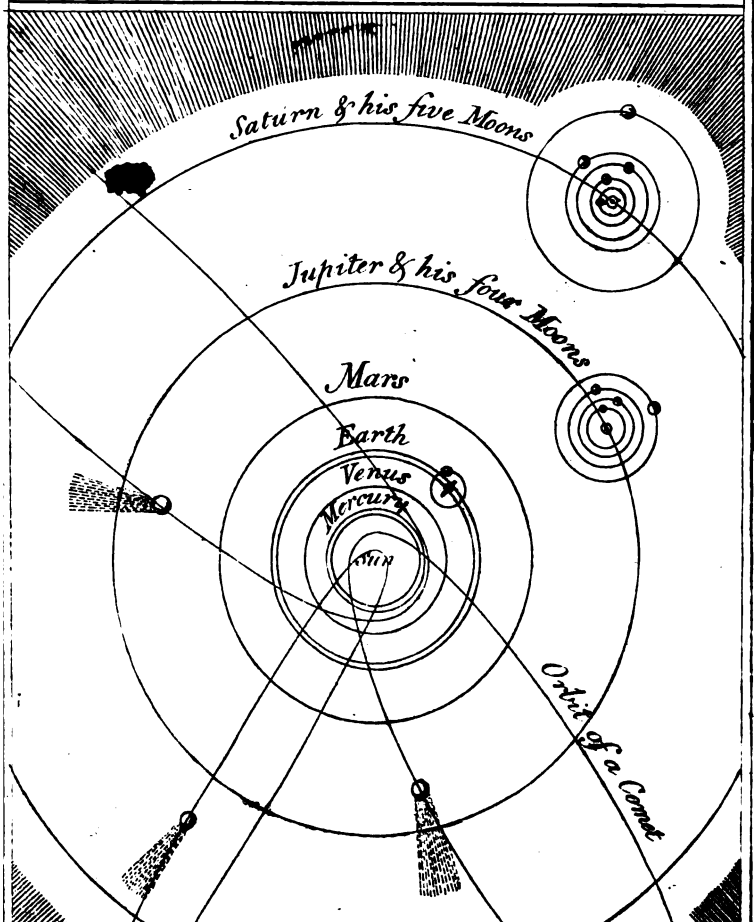

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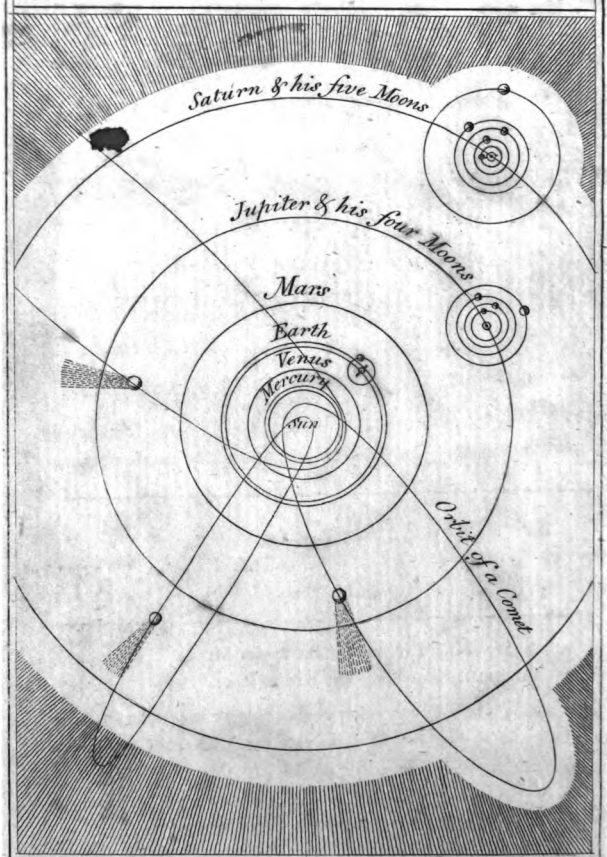

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THE

ELEMENTS

OF

USEFUL KNOWLEDGE:

Comprehending, among other interesting Particulars,

SHORT SYSTEMS OF

ASTRONOMY, MYTHOLOGY, CHRONOLOGY, AND RHETORIC;

WITH A BRIEF ACCOUNT OF THE

TRIAL AND EXECUTION OF LOUIS XVI.

AND OF

THE LATE TRANSACTIONS IN FRANCE.

To be read in Turns with such approved Selections as are generally used in Schools; and to be chiefly committed to Memory.

BY THE REV. J. ADAMS, A.M.

AUTHOR OF THE ELEMENTS OF READING AND LECTIONES SELECTÆ.

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And teach the young Idea how to shoot.

The taking a taste of every Sort of Knowledge is necessary to form the Mind, and is the only Way to give the Understanding its due Improvement to the full Extent of its Capacity. LOCKE.

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ELEMENTS

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ELEMENTS
OF
USEFUL KNOWLEDGE.

CHAP. I.

OF ASTRONOMY.

THE ſcience which treats of the planets, and other heavenly bodies, is called *Aſtronomy*. The moſt conſpicuous of the celeſtial bodies is that glorious luminary the *Sun*, the fountain of light and heat to the ſeveral planets, or habitable worlds, which revolve round it. Theſe planets, together with the ſun, compoſe what aſtronomers have called the *Solar Syſtem*. They are ſix in number; and their names are Mercury, Venus, the Earth, Mars, Jupiter and Saturn. With reſpect to their nearneſs to the centre, or middle point of the ſun, they are exactly in the order in which they are here

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mentioned. Mercury is neareſt to the ſun, Venus next, the Earth next, Mars next, Jupiter next, and Saturn is at the greateſt diſtance of all.

Dr. Herſchel, the famous German aſtronomer, lately diſcovered another planet, to which he gave the name of the *Georgium Sidus* *.

CHAP. II.

DISTANCES OF THE PLANETS FROM THE SUN.

THE diſtances of the planets from the ſun may eaſily be conceived in the following manner. Suppoſing the diſtance of the earth from the ſun to be divided into ten equal parts, then that of Mercury will be four of theſe parts; that of Venus ſeven; that of Mars fifteen; that of Jupiter fifty-two; and that of Saturn ninety-five. Hence it appears, that the Earth is placed between Mars and Venus, having Mars, Jupiter, and Saturn above her, and Venus and Mercury below her; and for this reaſon it is, that the three firſt are called ſuperior, and the two laſt inferior planets.

* This planet may be ſeen through a teleſcope, on the 2d of October, at two o'clock in the morning, in conjunction with that fixed ſtar of the firſt magnitude, called *Regulus*, or the *Lion's Heart*.

But

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But to expreſs the diſtances of the planets from the ſun, in Engliſh miles, the diſtance of Mercury from it is much about 37 *millions* of miles; of Venus 69 *millions* of miles; of the Earth 95 *millions* of miles; of Mars 145 *millions* of miles; of Jupiter 495 *millions* of miles; and of Saturn 908 *millions* of miles.

By theſe diſtances, however, are to be underſtood their mean diſtances; in order to comprehend which, it muſt be obſerved, that the orbit, or path, which a planet deſcribes about the ſun, is not a perfect *circle*, but a figure called an *ellipſis*; which, though ſomewhat reſembling a circle, is longer than it is broad. Hence the ſame planet is not always at the ſame diſtance from the ſun, and the mean diſtance of it is that which is exactly between its greateſt and leaſt diſtance.

CHAP. III.

DIFFERENCE BETWEEN A PLANET AND A FIXED STAR.

THE planets appear at firſt ſight like fixed ſtars; but, upon a more accurate view, they may eaſily be diſtinguiſhed from them. 1. By their

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never twinkling, as these last do. 2. By their being seen earliest in the evening, and latest in the morning. And 3. By their changing their position with regard to the fixed stars, and to one another.

Mercury can never be seen by the naked eye, on account of his nearness to the sun, in the splendor of whose beams he is totally absorbed. The only way of observing him is in his passage over the sun, when he appears like a black spot on its surface. Venus is sometimes our *evening*, and sometimes our *morning* star. Mars and Saturn may be easily known by their deep *red* colour. And Jupiter is distinguishable from the fixed stars by the *largeness* of his size, and the *brightness* of his colour, which is so great, that it will sometimes illuminate a *thin cloud* in the same manner as the moon.

CHAP. IV.

ON THE MOTION OF THE PLANETS.

ALL the planets, in different stated periods of time, perform their motion round the sun from west to east, in orbits nearly circular. Mercury performs his revolution in about *three years*; Venus

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Venus in about *ſeven months* and a half; the Earth in *a year*; Mars in about *two years*; Jupiter in *twelve*; and Saturn in about *thirty years*.

If we can form a notion of the manner in which any one of the planets, ſuppoſe our earth, moves round the ſun, we can eaſily conceive the manner in which all the reſt do it.

The earth, upon which we live, was long conſidered as one large extenſive *plane*. The heavens, above it, in which the ſun, moon, and ſtars, appeared to move daily from eaſt to weſt, were conceived to be at *no great diſtance* from it, and to be only deſigned for the uſe or ornament of our earth. Mankind, however, are now convinced that they live on a globe; and the ſpherical figure of the earth may be proved by a variety of arguments: 1. When we are on board a ſhip at ſea, we may be out of ſight of land, when the land is near enough to be viſible, if it were not hid from our eye by the convexity of the water. In this caſe, the tops of hills, cliffs, ſteeples, towers, &c. firſt appear to our view, next the buildings, and laſt of all the ſhore; which can proceed from nothing elſe but the roundneſs of the earth, whereby the lower objects are longer hid from the ſight, than thoſe which are higher.

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2. When we ſtand upon the ſhore, the higheſt part of a ſhip is viſible at the greateſt diſtance. If a ſhip be going from us out to ſea, we ſhall continue to ſee the maſt, after the hull or body of the ſhip diſappears, and the top of the maſt will be ſeen longeſt. But if the ſurface of the ſea were quite flat, every part of an object would be equally viſible; and not the higheſt, but the largeſt part of an object, would be viſible at the greateſt diſtance, ſo that we ſhould be able to ſee the hull of a ſhip farther off than the maſt. But this is contrary to experience; conſequently the earth is round.

3. Several navigators have ſailed quite round the earth; not in an exact circle, the winding of the ſhores preventing them from ſailing in a direct courſe; but by ſailing continually to the weſtward, they have reached the place from whence they at firſt departed. This was performed by Magellan, Cavendiſh, Sir Francis Drake, Lord Anſon, Bougainville, Commodore Byron, the Captains Carteret, Wallis, Cook, and others.

4. Eclipſes of the moon, which are occaſioned by the ſhadow of the earth falling on that planet, demonſtrate that the earth is of a globular figure; for this ſhadow is always circular, whatever ſituation the earth may be in at that time. Now a body

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body muſt be *globular*, which always caſts a circular ſhadow.

Nor are the little unevenneſſes on the earth's ſurface, ariſing from hills and vallies, any material objections to its being conſidered as a round body; becauſe the higheſt mountains bear leſs proportion to the bulk of the earth, than the little riſings on the coat of an orange bear to that fruit; or a grain of ſand to an artificial globe, of nine inches diameter. And accordingly, we find that the mountains and vallies on the ſurface of the earth, cauſe no irregularities in the ſhadow, during a lunar eclipſe; the circumference thereof being even and regular, and appearing as if caſt by a body truly globular.

The roundneſs of the earth being thoroughly eſtabliſhed, a way is naturally opened for the [redacted] covery of its motion. For while it was conſidered as a plane, mankind had an obſcure notion of its being ſupported, like a ſcaffolding, on *pillars*, though they could not tell what ſupported theſe. But the figure of a globe is much better adapted to motion.

This is confirmed by conſidering, that, if the *earth* does not *move* round the ſun, not only the *ſun*, but *all the ſtars* and *planets*, muſt *move* round the earth. Philoſophers, by reckonings founded on the

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ſureſt obſervations, have been able to *gueſs* pretty nearly at the diſtances of the heavenly bodies from the earth, and from each other, juſt as every body, who knows the firſt elements of mathematics, can meaſure the height of a ſteeple, or any object placed on it. It appears, therefore, that if we conceive the heavenly bodies to move round the earth, we muſt ſuppoſe them endowed with a motion, or velocity, ſo *immenſe* as to exceed all conception. All the appearances in nature, however, may be as well explained by imagining the earth to move round the ſun in the ſpace of a year, and to turn on its own axis once in twenty-four hours.

CHAP. V.

ON THE MOTION OF THE EARTH.

THE revolution of the earth round its axis, every twenty-four hours, or its *diurnal* motion, alternately cauſes day and night, as either ſide is turned toward, or from the ſun; and its periodical revolution round that luminary, in three hundred and ſixty-five days ſix hours, or its *annual* motion, produces the four ſeaſons of the year.

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To form a conception of theſe two motions of the earth, we may imagine a ball moving upon a billiard-table, or bowling-green. The ball proceeds forward upon the green or table, not by ſliding along like a plane upon wood, or a ſlate upon ice, but by turning round its own axis, which is an imaginary line drawn through the centre or middle of the ball, and ending on its ſurface in two points, called its poles.

Conceiving the matter then in this way, and that the earth, in the ſpace of twenty-four hours, moves from weſt to eaſt, the inhabitants on the ſurface of it, like men on the deck of a ſhip, who are inſenſible of their own motion, and think that the banks move from them in a contrary direction, will conceive that the ſun and ſtars move from eaſt to weſt, in the ſame time of twenty-four hours, in which they, along with the earth, move from weſt to eaſt.

This daily or *diurnal* motion of the earth being once clearly conceived, we may eaſily form a notion of its *annual* or yearly motion round the ſun. For as that luminary ſeems to have a daily motion round our earth, which is really occaſioned by the daily motion of the earth round its axis, ſo, in the courſe of a year, he ſeems to have an annual motion in the heavens, and to riſe and ſet in different

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points of them, which is really occaſioned by the daily motion of the earth on its orbit or path round the ſun, which it completes in the time of a year.

This double motion of the earth may alſo be compared to a coach turning round in a court-yard. The wheels go round their *own axis*, at the ſame time that they move round the *yard*. It travels at the rate of fifty-eight thouſand miles every hour, which is one hundred and twenty times ſwifter than a cannon-ball; and by its rapid motion on its axis, the inhabitants of London are carried five hundred and eighty miles every hour. Thoſe at the Equator move much faſter; thoſe towards the Poles much ſlower; and thoſe at the very Poles hardly move at all.

What has been ſaid, with regard to the motion of the earth, the ſmalleſt reflection may lead us to apply to the other planets.

CHAP. VI.

AN OBJECTION ANSWERED.

THE following objection is made by ſome to the diurnal rotation of the earth on its own axis. If it moves, ſay they, from weſt to eaſt, will

will not a ball, fired perpendicularly upward in the air, fall conſiderably weſtward of the place from which it was ſhot? By no means. For, as both the gun and ball partake of the earth's motion, the ball will be carried forward with the air, as quick as the earth and air turn, and will therefore fall on the very ſpot from which it was fired. Thus, if one let fall a ſtone from the top of a main-maſt, it will fall on the deck, as near the foot of the maſt, when the ſhip ſails, as when ſhe is at reſt.

CHAP. VII.

OF THE SECONDARY PLANETS, OR MOONS.

BESIDES the *ſix primary* planets already mentioned, which move round the ſun, there are other *ten* bodies which move round *three* of theſe, in the ſame manner as *they* do round the ſun. Of theſe our Earth has *one*, called the moon; Jupiter has *four*, and Saturn has *five*. Theſe are all called moons from their agreeing with our moon, which was firſt attended to. They are alſo called *ſatellites*, and *ſecondary planets*, becauſe they ſeem to be attendants of the Earth, Jupiter, and Saturn, about

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which they move, and which are called *primary*. Saturn has, beſides, a thin, broad ring that ſurrounds his body, without touching it, in the ſame manner as a horizon does an artificial globe. It is twenty-one thouſand miles in breadth, and is as far from Saturn on every ſide.

CHAP. VIII.

ON THE SIZE OF THE PLANETS.

THE Earth is *twenty-ſeven* times as big as Mercury, very little bigger than Venus, and *five* times as big as Mars. But Jupiter is *more* than a *thouſand* times as big as the Earth, Saturn *five hundred and eighty-ſix* times as big, excluſive of his ring; and the Sun is near *nine hundred thouſand* times as big as the Earth.

The Moon is, at leaſt, *forty-three thouſand* times leſs than the Sun, and fifty times leſs than the Earth. The reaſon of her appearing as big as the Sun is, that ſhe is much nearer the Earth. Her diſtance from the Earth is only two hundred and forty thouſand miles; whereas that of the Sun is ninety-five millions.

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CHAP. IX.

OF COMETS.

COMETS are certain dark or opaque bodies, like the planets, and move round the ſun, but in very eccentric orbits, being ſometimes ſo far from him, that their cold muſt be exceſſive, and ſometimes ſo near him, that their heat muſt be ſo intenſe, as would prove altogether intolerable to an inhabitant of this earth; and would even deſtroy, or at leaſt vitrify, the earth itſelf.

Sir Iſaac Newton computed the heat of the comet that appeared in the year 1680, when neareſt the ſun, to be two thouſand times hotter than red-hot iron, and that, being thus heated, it muſt retain its heat till it comes round again, although its period ſhould be more than twenty thouſand years; and it is computed to be only five hundred and ſeventy-five.

It is believed that there are at leaſt twenty-one comets belonging to our ſyſtem, moving in different directions. All thoſe which have been obſerved, have moved through the etherial regions and the orbits of the planets, without ſuffering the leaſt ſenſible reſiſtance in their motions, which ſufficiently

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ſufficiently proves that the planets do not move in ſolid orbs.

Of all the comets, the periods of three only are known with any degree of certainty, being found to return at intervals of 75, 129, and 575 years; and of theſe, that which appeared in 1680 is the moſt remarkable. This comet, at its greateſt diſtance, is about eleven thouſand two hundred millions of miles from the ſun, while its leaſt diſtance from the centre of the ſun is about four hundred and ninety thouſand miles. In that part of its orbit, which is neareſt the ſun, it flies with the amazing velocity of eight hundred and eighty thouſand miles in an hour; and the ſun, as ſeen from it, appears one hundred degrees in breadth, and conſequently forty thouſand times as large as he appears to us.

Our earth was out of the way, when this comet laſt paſſed near her orbit; but it requires a more perfect notion of the motion of the comet, to be able to judge, if it will always paſs by us, with ſo little effect. The comet, in one part of its orbit, approaches very near to the orbit of our earth; ſo that, in ſome revolutions, it may approach near enough to have very conſiderable, if not fatal effects upon it.

One of the comets was expected to return in 1789, but it has not yet appeared.

Comets

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Comets are always attended with long tranſparent trains or tails, iſſuing from that ſide of them which is turned away from the ſun.

Comets were formerly ſuppoſed to be prodigies or portents, and to foretel ſome great event or revolution, ſuch as the fall of empires, or the death of ſome eminent and diſtinguiſhed perſonage; but they are now known to have no more connection with the civil or political affairs of this world, than any other of the heavenly bodies.

CHAP. X.

OF THE FIXED STARS.

THE *fixed ſtars* comprehend all the other heavenly bodies, except the ſun, planets, and comets. They are diſtinguiſhed by the naked eye from the planets, by being leſs bright and luminous, and by continually exhibiting that appearance, which we call the twinkling of the ſtars. This ariſes from their being ſo extremely ſmall, that the interpoſition of the leaſt body, of which there are many conſtantly floating in the air, deprives us of the ſight of them. When the interpoſed body changes

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changes its place, we again ſee the ſtar; and this ſucceſſion being perpetual, occaſions the twinkling.

But a more *remarkable* property of the fixed ſtars, and that from which they have obtained their name, is their never changing their ſituation, with regard to each other, as the planets, from what we have already ſaid, muſt evidently be always changing theirs.

The ſtars which are *neareſt* to us ſeem *largeſt*, and are therefore called of the *firſt magnitude*. Thoſe of the *ſecond magnitude* appear *leſs*; and ſo proceeding on to the *ſixth magnitude*, which includes all the fixed ſtars that are viſible without a teleſcope.

CHAP. XI.

NUMBER OF THE FIXED STARS.

AS to their number, though in a clear winter's night, without moonſhine, they ſeem to be innumerable, which is owing to their ſtrong ſparkling, and our looking at them in a confuſed manner, yet when the whole firmament is divided, as it has been done by the ancients, into ſigns and conſtellations,

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ſtellations, the number that can be ſeen at a time, by the naked eye, is not above a *thouſand*.

Since the introduction of teleſcopes, indeed, the number of the fixed ſtars has been juſtly conſidered as *immenſe*; becauſe the greater perfection we arrive at in our glaſſes, the more ſtars always appear to us. Mr. Flamſteed, late royal aſtronomer at Greenwich, has given us a catalogue of about three thouſand ſtars, which is the moſt complete that has hitherto appeared. Halley obſerved three hundred and fifty more in the ſouthern hemiſphere.

CHAP. XII.

OF THE DOG-STAR.

THE immenſe diſtance of the fixed ſtars from our earth, and from one another, is of all conſiderations the moſt proper for raiſing our ideas of the works of God. The ſtar neareſt to us, and conſequently the largeſt in appearance, is the *dog-ſtar*, or *Sirius*. Modern diſcoveries make it probable, that each of theſe fixed ſtars is a ſun, having worlds revolving round it, as our ſun has the earth and other planets revolving round him. So that, perhaps, there are as many ſyſtems of worlds, as there

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there are fixed ſtars in the expanſe of heaven. Now the dog-ſtar appears *twenty-ſeven thouſand* times leſs than the ſun; and, as the diſtance of the ſtars muſt be greater as *they* ſeem leſs, mathematicians have computed the diſtance of *Sirius* from us to be *two billions* and *two hundred thouſand millions* of miles.

The motion of light, therefore, which, though ſo *quick* as to be commonly thought *inſtantaneous*, takes up more time in *travelling* from the ſtars to *us*, than *we* do in making a Weſt India voyage. A *ſound* would not arrive to us from thence in *fifty thouſand* years; which, next to light, is conſidered as the quickeſt body we are acquainted with. And a cannon-ball, flying at the rate of four hundred and eighty miles an hour, would not reach us in *ſeven hundred thouſand* years.

CHAP. XIII.

OF THE CONSTELLATIONS ON EACH SIDE OF THE ZODIAC.

THE firſt people, who paid much attention to the fixed ſtars, were the *ſhepherds* in the beautiful plains of Egypt and Babylon; who, partly from

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from amuſement, and partly with a view to direct them in travelling during the night, obſerved the ſituation of theſe celeſtial bodies. Endowed with a lively fancy, they divided the ſtars into different *companies* or conſtellations, each of which they ſuppoſed to repreſent the image of ſome *animal*, or other *terreſtrial* object.

The peaſants in our own country do the ſame thing; for they diſtinguiſh that great northern conſtellation, which philoſophers call the *Urſa Major*, by the name of the *Plough*, the figure of which it may certainly repreſent with a very little help from the fancy.

But the conſtellations, in general, have preſerved the names, which were given them by the ancients. They are reckoned twenty-one *northern*, and twelve *ſouthern*; but the moderns have increaſed the number of the northern to thirty-ſix, and of the ſouthern to thirty.

NORTHERN CONSTELLATIONS.

The Little Bear, the Great Bear, the Dragon, the Greyhounds, Bootes *, and *Mons Menelaus: Cepheus* †, *Berenice's Hair, Charles's Heart, the Northern Crown, Hercules* ‡, and *Cerberus: The Harp,*

* The keep of the bear.

† A King of Ethiopia.

‡ With his club watching the dragon.

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the Swan, the Fox, the Gooſe, the Lizard, Caſſiopeia, and *Perſeus: Andromeda, the Great Triangle, the Little Triangle, Auriga, Pegaſus* *, *the Dolphin,* and *the Arrow: The Eagle, Serpentarius, the Serpent, Sobieſki's Shield, Camelopardus,* and *the Colt: Antinous, the Lynx, the Little Lion,* and *Muſca.*

SOUTHERN CONSTELLATIONS.

The Whale, the River Eridanus, the Hare, Orion, the Great Dog, and *the Little Dog: The Ship Argo, Hydra, the Centaur, the Cup, the Crow, the Wolf,* and *the Altar: the Southern Crown, the Southern Fiſh, the Phœnix, the Crane,* and *the Peacock: Noah's Dove, the Indian, the Bird of Paradiſe, Charles's Oak, the Southern Triangle,* and *the Fly* or *Bee: the Swallow, the Cameleon, the Flying Fiſh, the American Gooſe, the Water Serpent,* and *the Sword Fiſh.*

Some of the principal ſtars have particular names given them, as *Aldebaram,* in the *Bull's Eye*; *Regulus,* or the *Lion's Heart*; *Arctlurus,* in *Bootes*; *Syrius,* in the *Great Dog*; *Spica,* or the *Ear of Corn,* in *Virgo*; *Pleiades,* or the *Seven Stars.*

Beſides the ſtars viſible to the naked eye, there is a very remarkable ſpace in the heavens, called the *Galaxy,* or *Milky Way.* This is a broad circle

* Or the Flying Horſe.

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of a whitiſh hue, like milk, going quite round the whole heavens, and conſiſting of an infinite number of ſmall ſtars, viſible through a teleſcope, though not diſcernible by the naked eye.

CHAP. XIV.

OF THE TWELVE SIGNS IN THE ZODIAC.

BESIDES the above-mentioned, there are twelve *ſigns* or conſtellations in the Zodiac, as it is called from a Greek word ſignifying an animal, becauſe each of theſe twelve repreſents ſome animal. The line in the middle of the Zodiac is called the Ecliptic; becauſe *eclipſes* happen in or near that line. It is called *Via Solis*, the * ſun's annual path, or way, through the heavens. But in aſtronomy it is that circle, or path, which the earth would deſcribe to an eye, placed in the centre of the ſyſtem, viz. the ſun. It is divided into twelve equal parts,

* Properly ſpeaking, however, it ought to be called the earth's yearly path through the heavens.

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which are called *Signs*, and have different names and characters.

NORTHERN SIGNS.

Aries.	*Taurus.*	*Gemini.*	*Cancer.*	*Leo.*	*Virgo.*
♈	♉	♊	♋	♌	♍

SOUTHERN.

Libra.	*Scorpio.*	*Sagittarius.*	*Capricornus.*	*Aquarius.*	*Pisces.*
♎	♏	♐	♑	♒	♓

The signification of these names is as follows. Aries signifies the *Ram*; Taurus the *Bull*; Gemini the *Twins*; Cancer the *Crab*; Leo the *Lion*; Virgo the *Virgin*; Libra the *Balance*; Scorpio the *Scorpion*; Sagittarius the *Archer*; Capricornus the *Goat*; Aquarius the *Water-bearer*; and Pisces the *Fishes*.

It is not easy to say, why the ancient astronomers affixed such images as the Ram, the Bull, &c. to the twelve Signs of the Zodiac. There is great reason, however, to suppose that they were placed as hieroglyphics of the seasons of the year, alluding to the annual course of the sun.

Thus, Aries, Taurus, and Gemini, represent *March*, *April*, and *May*, the spring quarter of the year, when *lambs*, *calves*, and *goats* (the latter generally bringing forth *twin kids*) are produced.

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Cancer, the *Crab*, which *creeps both ways*, repreſents the increaſe and decreaſe of the ſun's declination, to and from the ſummer ſolſtice, in June.

Leo, the *Lion*, intimates the *raging heat* of the ſun in July, which the ancients compared to the furious nature of that *fierce* animal.

Virgo, the *Virgin*, with a ſpike or ear of corn in her hand, properly repreſents Auguſt, when the *harveſt* of the earth is *ripe*.

Libra, the *Balance*, is diſplayed in September, to intimate that the days, at the autumnal equinox, are equal in all parts of the globe.

Scorpio, the *Scorpion*, a noxious animal, is placed as the hieroglyphic of October; becauſe, at that ſeaſon, diſeaſes of various kinds too often *rage*.

Sagittarius, the *Archer*, marks November as the proper time for *hunting*.

Capricornus, the *Goat*, by its *climbing* up the rocks, is placed as an *emblem* of December, when the ſun, at the winter ſolſtice, begins to aſcend again towards the equinoctial.

Aquarius, the *Water-bearer*, with his urn, repreſents January, when *rains* are frequent.

Piſces, the *Fiſhes*, are emblems of the fiſhing ſeaſon, which began in the *Nile* during the month of February.

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The names of the twelve Signs are contained in the following verſes.

The *ram*, the *bull*, the *heavenly twins*,
And next the *crab*, the *lion* ſhines,
The *virgin* and the *ſcales*:
The *ſcorpion*, *archer*, and *ſea-goat*,
The man that holds the *water pot*,
And *fiſh* with glittering tails.

CHAP. XV.

OF THE SUN AND MOON, AND ECLIPSES.

SOME imagine the *Sun* to be a common fire, continually ſupplied with globules of combuſtible matter, and therefore have thought it to be the place of hell. Others ſay that it is an elementary fire, which ſubſiſts without any kind of nouriſhment.

Though the ſun be nine hundred thouſand times bigger than the earth, it appears but ſmall on account of its diſtance, which is ſo very great, that a cannon-ball would be twenty-five years coming from thence to the earth, even if it flew as ſwift as

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as it does, when it is firſt diſcharged from the mouth of the cannon.

It was formerly ſuppoſed that the ſun moved round the earth, becauſe he ſeemed to do ſo. But it is now demonſtrated that he always remains fixed in the ſame place, and that the earth and other planets move round about him.

The *Moon* is a large globe like our earth, both in matter and form. She is not a luminary like the ſun, but a dark opaque body, and receives all the light ſhe ſhines with from the ſun, and by reflection conveys it to *us* in the ſun's abſence.

The different degrees of light, with which the moon ſhines, are called her *phaſes*. At *new* moon ſhe is between the ſun and the earth, and her enlightened parts are hid or turned from us; when *full*, we are between her and the ſun, and we ſee all her enlightened ſide. She likewiſe appears a *horned*, *half*, or *gibbous* moon, when a little part of her light turns towards us.

The *bright* parts of the moon's body are the higheſt parts of the land, as hills, mountains, promontories, iſlands, &c. and the darker parts of the moon are caverns, deep pits, and places which reflect not the ſun's light ſo ſtrongly as others.

The earth is at leaſt fifty times bigger than the moon; and the diſtance between them, as was be-

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fore obſerved, is about two hundred and forty thouſand miles.

The moon is the cauſe of the tides. By attracting the waters of the ſea, ſhe raiſes them higher.

An *Eclipſe* is a total or partial privation of the light of the ſun or moon. An eclipſe of the ſun happens, when the moon comes between the *ſun* and the earth. In this poſition ſhe will wholly or partly intercept the rays of the ſun, which is then ſaid to undergo an eclipſe. When this eclipſe is total, the darkneſs is ſo great, that the ſtars will appear at noon-day.

An eclipſe of the moon is occaſioned by the coming of the earth between the moon and the ſun. It is eaſy to be conceived, that the moon, having no light of her own, when the rays of the ſun are intercepted from her, will appear dark or duſky.

An eclipſe of the *ſun* never happens but at a new moon, nor one of the *moon*, but when ſhe is full.

CHAP.

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CHAP. XVI.

ON A PLURALITY OF WORLDS.

THE *Sun*, with all its attendant planets, is but a *very little* part of the grand machine of the univerſe. The ſtars which we behold in the firmament, though owing to their immenſe and inconceivable diſtance they appear very ſmall, are no leſs ſpacious and luminous than the radiant ſource of our day. Every *ſtar*, as was before mentioned, is the *centre* of a ſyſtem,—has a *retinue* of worlds *enlightened* by its beams, and revolving round its attractive influence.

Were it poſſible that we could be conveyed to the moſt *diſtant* of thoſe twinkling luminaries, that are within the reach of our ſight, even when aſſiſted by human art, we ſhould there ſee *other ſkies* expanded, *another ſun* diſtributing his inexhauſtible beams by day, *other ſtars* that gild the horrors of the alternate night, and other, perhaps *nobler*, ſyſtems eſtabliſhed, in unknown profuſion, through the *boundleſs* dimenſions of ſpace.

Job, after a moſt beautiful diſſertation on the works of God, as they are diſtributed through univerſal nature, cloſes the account with this acknow-

 ledgment,

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ledgment, " Lo! theſe are parts of his ways;" or, as the original word more literally ſignifies, and may perhaps be more elegantly rendered, " Theſe are only the outermoſt borders of his works;" no more than a *ſmall province* of God's univerſal empire.

It is obſerved by a very judicious * writer, " That if the ſun himſelf, which enlightens this part of the creation, was extinguiſhed, and all the hoſt of planetary worlds, which move about him, were annihilated, they would not be miſſed, any more than a grain of ſand upon the ſea-ſhore. The bulk of which they conſiſt, and the ſpace which they occupy, is ſo exceedingly little, in compariſon of the whole, that their loſs would ſcarce leave a blank in the immenſity of God's works. The chaſm would be imperceptible to an eye, that could take in the whole compaſs of nature, and paſs from one end of the creation to the other."

A celebrated † philoſopher carries this thought ſo far, that he does not think it impoſſible there may be ſtars, ſo far removed from this earth, that their *light* has not as yet *reached* to us, ſince their *firſt creation.*

There is no queſtion but the univerſe has certain bounds ſet to it; but when we conſider that it is

* Mr. Addiſon. † Huyghens.

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the work of infinite wiſdom, prompted by infinite goodneſs, with an infinite ſpace to exert itſelf in, how can our imagination ſet any bounds to it?

What an auguſt, what an amazing conception, if human imagination can conceive it, does this give of the works of the Creator! Thouſands and thouſands of ſuns, multiplied without end, and ranged all around us, at immenſe diſtances from each other, attended by *ten thouſand times ten thouſand* worlds, all in rapid motion, yet calm, regular and harmonious, invariably keeping the paths preſcribed them; and theſe worlds, in all probability, peopled with myriads of intelligent beings, formed for endleſs progreſſion in perfection and felicity.

If ſo much power, wiſdom, goodneſs, and magnificence are diſplayed in the material creation, which is the leaſt conſiderable part of the univerſe, how wiſe, how good muſt HE be, who made and governs the whole!

CHAP. XVII.

ON THE ATMOSPHERE, OR SURROUNDING AIR.

THE atmoſphere is a thin, inviſible fluid, which ſurrounds the earth to a conſiderable height. It accompanies it in its diurnal motion round its

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own axis, and in its annual motion round the ſun. The vapours float in it. The clouds are ſuſpended by it. It furniſhes wind and rain. In ſhort, it is that in which we live and breathe.

According to Dr. Keill, and other aſtronomical writers, it is entirely owing to the *atmoſphere* that the heavens appear *bright* in the day-time. For, without the atmoſphere, only that part of the heavens would ſhine in which the ſun was placed; and if we could live without air, and ſhould turn our backs towards the ſun, the whole heavens would appear as dark as in the night, and the ſtars would be ſeen as clear as in the nocturnal ſky.

In this caſe we ſhould have no twilight. There would be a ſudden tranſition from the brighteſt ſunſhine to the blackeſt darkneſs, immediately after ſun-ſet; and from the blackeſt darkneſs to the brighteſt ſunſhine, at ſun-riſing. This would be extremely inconvenient, if not blinding to all mortals. But, by means of the atmoſphere, we enjoy the ſun's light, reflected from the aërial particles, for ſome time before he riſes, and after he ſets. For when the ſun has deſcended below the horizon, and conſequently is out of our ſight, the atmoſphere, being higher than we are, has his light ſtill imparted to it, and reflects it to us. This light, or rather twilight, gradually decreaſes, till the ſun

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has got eighteen degrees below the horizon; and then all that part of the atmoſphere, which is above us, is dark.

From the length of the twilight, the Doctor has calculated the height of the atmoſphere (ſo far as it is denſe enough to reflect any light) to be about forty-four miles. But it is ſeldom denſe or heavy enough, at two miles height, to bear up the clouds. The higher it goes, the thinner and lighter it becomes, and a ſmaller quantity of it occupies a larger ſpace. Its real height, however, cannot be aſcertained.

CHAP. XVIII.

CONCERNING THE INHABITANTS OF THE PLANETS.

THE magnificence of Nature ſhines forth in all her works. Could that all-powerful hand which weighed the foundations of the univerſe, which ſuſpended from the lamp of heaven millions of luminous globes, which gave them the firſt impulſe, and which created planets like thoſe which we inhabit, find obſtacles to prevent it from peopling theſe orbs, as it has peopled ours?

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All the obſervations of the moderns tend to perſuade us that *our moon* has an atmoſphere; parts more elevated and enlightened than others; parts lower and obſcurer; and others, which reflecting leſs light, and preſenting a ſurface always equally ſmooth, are thought to be a large collection of waters. Have we not every reaſon then to infer, according to our notions of the wiſdom of God, that he has placed there beings of ſome kind or other, to inhabit that planet, in order that all theſe phænomena may not be entirely loſt? We can never perſuade ourſelves that Nature, or the Supreme Architect of the world, ſhould have made any thing *in vain*.

Father Kircher tranſported himſelf in idea to all the planets, and has given a deſcription of their inhabitants according to his exalted imagination. Saturn, he ſays, is peopled with *melancholy old men*, who have pale viſages and ſtern looks, and who, cloathed in diſmal dreſſes, march along with a ſlow pace, bearing in their hands flaming torches. In Venus he obſerved young people, of the *fineſt* figure and *moſt exquiſite* beauty, ſome of whom danced to the ſound of *harps* and cymbals, whilſt others ſcattered, in great profuſion, odours and perfumes.

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The ſuperſtition and enthuſiaſm mixed with theſe ideas, cannot deſtroy thoſe truths which are blended with them.

Whoever imagines that ſo many glorious ſuns were created only to give a faint glimmering light to the inhabitants of this globe, muſt have a very ſuperficial knowledge of aſtronomy, and a mean opinion of the divine Wiſdom. There are many ſtars which are not viſible without the aſſiſtance of a good teleſcope; and therefore, inſtead of giving light to this world, they can only be ſeen by a few aſtronomers. By an infinitely leſs exertion of creating power, the Deity could have given our earth much more light by a ſingle additional moon.

Fontenelle has ſecured himſelf from the objections of divines, by not placing *men* in the *other planets*, but inhabitants of a *different* nature. But it was far from being *neceſſary* for him to do ſo. The ſcripture, indeed, informs us, that all mankind are *deſcended* from Adam, but this is only meant of thoſe men who inhabit *our globe*. Other men may inhabit other planets, and may have ſprung from ſome other father than Adam. Dare we, who, in compariſon of the univerſe, are mere inſects, creeping over the ſurface of that little ſpot called the earth, preſcribe bounds to all Nature!

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With great reaſon, then, do all philoſophers now admit as many ſolar ſyſtems, more or leſs like ours, as there are fixed ſtars. Even thoſe minds, which are the leaſt tinctured with philoſophy, begin to be familiarized with this idea of millions of worlds; which, in ſome meaſure, may be aſcribed to the elegant work of Fontenelle on this ſubject.

CHAP. XIX.

THE CELESTIAL BODIES PROVE THAT THERE IS A GOD.

WHO that lifts up his eyes to the heavens, and beholds the wonders of the firmament, can entertain the leaſt doubt of the exiſtence of a Supreme Being? "There is no ſpeech nor language, where their voice is not heard. Their line is gone out through all the earth, and their words to the end of the world." To imagine ſuch effects without a cauſe, or to aſcribe them to a cauſe leſs than divine, is bidding defiance to the faculty of intelligence, and renouncing the character of a rational being. The reaſonings of an ancient philoſopher on this point are excellent. "Let us ſuppoſe," ſays

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ſays he, " certain perſons to have been born, and to have lived in ſubterraneous habitations, till they came to the years of maturity and diſcretion, and then to be introduced into this *fair world*, which we inhabit. Let them be imagined to behold the face of the earth, diverſified with *hills* and *vales*, with *rivers* and *woods*; the *wide extended* ocean, the *lofty* ſky, and the *clouds* carried along by the *winds*. Let them behold the *ſun*, and obſerve his tranſcendent brightneſs, and wonderful influence, as he pours down the flood of day, over the whole earth, from eaſt to weſt. And when night covered the world with darkneſs, let them behold the hemiſphere, beſpangled and adorned with *innumerable ſtars*. Let them obſerve the various appearances of the *moon*, in her increaſe and decreaſe. Let them have leiſure to mark the riſing and ſetting of the celeſtial luminaries, and to underſtand that their eſtabliſhed courſes have been going on from age to age. When, ſays he, they had ſurveyed and conſidered all theſe things, they would infallibly conclude, that they were the workmanſhip of a Being, poſſeſſed of all thoſe perfections, which are generally aſcribed to the great Creator."

The heavenly bodies ſpeak intelligibly to all mankind. There is no people ſo uncivilized, no nation ſo barbarous, which may not receive both

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conviction and inſtruction from them. So wonderful and grand a ſcene muſt certainly ſtrike even the rudeſt minds, and produce awful impreſſions, as well as devout acknowledgments.

CHAP. XX.

ON THE DIVINE WISDOM, DISPLAYED IN THE HEAVENLY BODIES.

WHAT ſkill leſs than divine could have poiſed the ſtars with inexpreſſible nicety, and meted out the heavens with a ſpan? where all is grand, and vaſt, and various, but yet moſt exact. All the ſpheres proceed in eternal harmony; keeping ſuch time, and obſerving ſuch laws, as are moſt exquiſitely adapted to the perfection of the whole.

Surely the wiſdom of the Deity manifeſts itſelf in the heavenly bodies, and ſhines on the contemplative mind with a luſtre incomparably brighter than that, which their united ſplendors tranſmit to the eye.

9

" There

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" There dwells a noble pathos in the ſkies,
" Which warms our paſſions, proſelytes our hearts:
" How *eloquently ſhine* the glowing orbs!
" Remonſtrating great truths in ſtyle ſublime *?

CHAP. XXI.

THE HEAVENS DECLARE THE POWER OF THE DEITY.

" We read God's *awful power*, imprinted high,
" With golden letters, on the ſtarry ſky †."

IN what majeſtic lines is it *there* written! In what legible characters is it there recorded! In how ſtriking a manner is it there diſplayed! " By the word of the Lord were the heavens made, and all the hoſt of them by the breath of his mouth." He ſaid, " Let there be light, and there was light. Let there be a firmament, and their was a firmament. Let the ſun rule the day, and the moon the night, and ſo it was!" At his command, order ſprung out of confuſion, and the beautiful fabric of the univerſe emerged from chaos. " He ſtretched out the north

* Dr. Young. † Mrs. Barbauld.

over

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over the empty place," ſuſpended the earth upon nothing, and bade the planets go their everlaſting round. With what wonderful rapidity, and yet with what perfect regularity, do they perform their revolutions! How minutely faithful to the viciſſitudes of day and night! How exactly punctual in bringing on the changes of their reſpective ſeaſons! By the great Creator were they firſt ſet in motion. He impreſſed upon them the power of *gravitation*, by which they hang ſelf-balanced on their centres, and require nothing but this amazing property for their ſupport. If it were the pleaſure of the Deity, that this principle ſhould ceaſe to exert its energy, the univerſal frame would be diſſolved, and all Nature would return to her original chaotic ſtate: or, as the ingenious and much-admired author of the Seaſons expreſſes it,

——————" Should God hide his face,
" Th' aſtoniſh'd ſun, and all th' extinguiſh'd ſtars,
" Would looſening reel, wide from their ſpheres,
" And chaos come again *!"

* Thomſon.

CHAP.

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CHAP. XXII.

ON THE GOODNESS OF THE DEITY, DISPLAYED IN THE CREATION.

IT was nobly ſaid by a Grecian philoſopher, "That God, when he undertook the work of creation, transformed himſelf into *Love*." He has no occaſion, however, to transform himſelf into this amiable principle, for he is the fountain and the ſource of it. It is much eaſier to believe that there is no God, than that he is not good and beneficent. He created this earth, and all the brighter realms on high, and peopled them with ſo many tribes of inhabitants, for no other purpoſe, but to transfuſe his *exuberant kindneſs*, and to communicate felicity and joy to *innumerable ranks* of ſenſitive and intelligent exiſtence.

Large as the compaſs of creation is, every thing contributes to the beauty, the order, and well-being of the whole. The ſun is the inexhauſted ſource of light and heat and comfort, ſhedding day through all the ſyſtem, and extending his benign and enlightening influence to ſurrounding worlds. The clouds being raiſed in copious exhalations from the vaſt ocean, are kindly commiſſioned to drop down fatneſs

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fatneſs as they fall, to diffuſe fertility over the earth, and to ſcatter flowers over the field.

The goodneſs of the Deity warms in the morning ſun, refreſhes in the evening breeze, ſmiles in the bloſſoms of ſpring, and ſhines in the conſtellations of heaven.

——————"The glitt'ring ſtars
"By the deep ear of meditation heard,
"Still in their midnight watches ſing of Him."

What an amiable idea of the Author of Nature doth this convey to us! Is it poſſible to conceive any excellence ſo attractive, as infinite benevolence, guided by unerring wiſdom, and exerting almighty power, on purpoſe to make a whole univerſe happy?

CHAP. XXIII.

ON THE RISE, PROGRESS, AND REVOLUTIONS OF ASTRONOMY.

MANKIND muſt have made a very conſiderable improvement in obſerving the motions of the heavenly bodies, before they could ſo far diſengage themſelves from the prejudices of ſenſe and popular

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popular opinion, as to believe that the earth, upon which we live, was not fixed and immoveable.

We find accordingly, that *Thales*, the Mileſian, who, about 580 years before Chriſt, firſt taught aſtonomy in Europe, had gone ſo far in this ſubject, as to calculate eclipſes, or the interpoſitions of the moon between the earth and the ſun, or of the earth between the ſun and the moon.

Pythagoras, a Greek philoſopher, flouriſhed about ten years after Thales, and was, no doubt, equally well acquainted with the motion of the heavenly bodies. This led Pythagoras to conceive an idea, which there is no reaſon to believe had ever been thought of before, namely, that the earth itſelf was in motion, and that the ſun was at reſt. He found that it was impoſſible, in any other way, to give a conſiſtent account of the heavenly motions.

The ſyſtem, however, was ſo extremely oppoſite to all the prejudices of ſenſe and opinion, that it never made great progreſs, nor was ever widely diffuſed in the ancient world. The philoſophers of antiquity, deſpairing of being able to overcome ignorance by reaſon, ſet themſelves to adapt the one to the other, and to form a reconciliation between them.

This was the caſe with *Ptolemy*, an Egyptian philoſopher, who flouriſhed 138 years before Chriſt. He

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He ſuppoſed, with the vulgar, who meaſure every thing by themſelves, that the earth was fixed immoveably in the centre of the univerſe, and that the ſeven planets, conſidering the moon as one of the primaries, were placed near to it; above them was the firmament of fixed ſtars, then the cryſtalline orbs, then the *primum mobile*, and, laſt of all, *cælum empirium*, or heaven of heavens. All theſe vaſt orbs he ſuppoſed to move round the earth once in twenty-four hours; and beſides that, in certain ſtated and periodical times. This ſyſtem was univerſally maintained by the Peripatetic philoſophers, who were the moſt conſiderable ſect in Europe from the time of Ptolemy to the revival of learning in the ſixteenth century.

At length, Copernicus, a native of Poland, a bold and original genius, adopted the Pythagorean or true ſyſtem of the univerſe; and publiſhed it to the world in the year 1530. This doctrine had been ſo long in obſcurity, that the reſtorer of it was conſidered as the inventor; and the ſyſtem obtained the name of the *Copernican Philoſophy*, though only revived by that great man.

Europe, however, was ſtill immerſed in ignorance; and the general ideas of the world were not able to keep pace with thoſe of a refined philoſophy. This occaſioned Copernicus to have few abettors,

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abettors, but many opponents. Tycho Brahe, in particular, a noble Dane, ſenſible of the defects of the Ptolemaic ſyſtem, but unwilling to acknowledge the motion of the earth, endeavoured, about 1586, to eſtabliſh a new ſyſtem of his own, which was ſtill more perplexed and embarraſſed than that of Ptolemy. It allows a monthly motion to the moon round the earth, as the centre of its orbit; and it makes the ſun to be the centre of the orbits of Mercury, Venus, Mars, Jupiter, and Saturn. The ſun, however, with all the planets, is ſuppoſed to be whirled round the earth in a year, and even once in twenty-four hours. This ſyſtem, notwithſtanding its abſurdity, met with its advocates, who ſo far refined upon it, as to admit the diurnal motion of the earth, though they inſiſted that it had no annual motion.

CHAP. XXIV.

OF GALILEO.

ABOUT the year 1610, after a darkneſs of a great many ages, the firſt dawn of learning and taſte began to revive in Europe. Learned men, in

in different countries, began to cultivate aſtronomy. Galileo, a Florentine, introduced the uſe of teleſcopes, which diſcovered new arguments in ſupport of the motion of the earth, and confirmed the old ones. The fury and bigotry of the clergy, indeed, had almoſt checked this flouriſhing bud. Galileo was obliged to renounce the Copernican ſyſtem, as a damnable hereſy.

The happy reformation in religion, however, placed the one half of Europe beyond the reach of the papal thunder. It taught mankind, that the ſcriptures were not given for explaining ſyſtems of natural philoſophy, but for a much nobler purpoſe, to make us juſt, virtuous, and humane: that, inſtead of oppoſing the word of God, which, in ſpeaking of natural things, ſuits itſelf to the prejudices of weak mortals, we employed our faculties in a manner highly agreeable to God himſelf, in tracing the nature of his *works*. The more *they* are conſidered, the more they afford us the greater reaſon to admire his glorious attributes of power, wiſdom, and goodneſs.

From this time, therefore, noble diſcoveries were made in all the branches of aſtronomy. The motions of the heavenly bodies were not only clearly explained, but the *general law of nature*, according to which they moved, was diſcovered and illuſtrated by

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by the immortal Newton. This law is called *Gravity* or *Attraction*, and is the ſame by which any body falls to the ground, when diſengaged from what ſupported it. It has been demonſtrated, that this ſame law, which keeps the *ſea* in its *channel*, and the various bodies which cover the ſurface of this earth from *flying off into the air*, operates throughout the univerſe, keeps the *planets* in their *orbits*, and preſerves the whole fabric of nature from confuſion and diſorder.

CHAP. XXV.

ON MYTHOLOGY, OR THE HISTORY OF THE HEATHEN DEITIES.

MYTHOLOGY is the religion of the Pagans, which conſiſted in the worſhip of falſe gods, whom their poets, painters, and ſtatuaries imagined, and to whom they gave different attributes. It is the *baſis* of hiſtory, the *ſtandard* of criticiſm, and the *guide* to the ſtudies of youth.

A knowledge of *feigned Hiſtory*, or Mythology, is abſolutely neceſſary to the reader of the *Claſſics*, to

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to the *Painter*, and to the *Statuary**. We muſt not, therefore, overlook even the fictions of the more illuſtrious poets †.

CHAP. XXVI.

OF COELUS AND TERRA, SATURN AND CYBELE.

COELUS is ſaid to be the ſon of the *Air*, great father of the gods, and huſband of *Terra*, the daughter of the Earth, by whom he had the Cyclops, Oceanus, Titan, the Hundred Giants, and many other children, the moſt eminent of which was *Saturn*, or *Time*.

This fable plainly ſignifies, that the Air and Earth were the common parent of all created beings. Cœlus was dethroned by his youngeſt ſon Saturn.

SATURN was the moſt ancient of all the gods. Titan, his elder brother, reſigned his birth-right to him, on condition that he ſhould deſtroy all his male iſſue, that the empire of the world might in time fall to his poſterity. Saturn accepted of this

* Knox. † Quintilian.

condition;

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condition; but Titan afterwards ſuſpecting that his brother had broke the contract between them, made war againſt him, and kept him in priſon, from whence he was releaſed by his ſon Jupiter, and re-inſtated in his government. He was afterwards dethroned by Jupiter himſelf.

Saturn is repreſented as the emblem of *Time*, with a ſcythe in his hand; and during his reign, it is ſaid, was the golden age of the earth, when the ground yielded all ſorts of fruits without culture, and *Aſtræa*, or *Juſtice*, dwelt among men, who lived together in perfect love and amity. He is ſaid to have deſtroyed all his children, becauſe *Time* devours all things.

CYBELE was the wife of Saturn, and accounted *mother* of the gods. She hath her head crowned with towers, and is the goddeſs of cities, garriſons, and all things that the earth ſuſtains.

In her hand ſhe carries a key, becauſe in winter the earth *locks* up her treaſures, which in the ſpring ſhe *unlooſes*, brings forth, and diſpenſes with a plentiful hand.

She is ſeated in a chariot, becauſe the earth hangs in the air, being poiſed by its own weight. Her garments were painted with flowers of various colours, and figured with images of ſeveral creatures;

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tures; which needs no explanation, ſince every one knows, that ſuch a dreſs is ſuitable to the earth.

CHAP. XXVII.

OF JUPITER AND JUNO.

JUPITER, the ſon of *Saturn* and *Cybele*, or *Ops*, is the father and king of gods and men. He is repreſented ſitting on a throne of ivory and gold, holding thunder in his right hand, and in the left a ſcepter made of cypreſs; which wood, being free from corruption, is a ſymbol of eternal empire.

He was born, and educated, upon *Idá*, a mountain in Crete. Some ſay he was nurſed by the *Nymphs*, and others, that he was fed by the *bees*, with honey.

Jupiter, after he had depoſed his father *Saturn* from the throne, and expelled him the kingdom, divided the paternal inheritance with his two brothers, *Neptune* and *Pluto*. He ſo obliged and aſſiſted mankind by great favours, that he not only got the title of Jupiter, but alſo obtained divine honors, and

and was eſteemed the common father of gods and men.

Jupiter is ſtiled *Optimus Maximus*, from his power and willingneſs to do good to all men. He is alſo named *Olympius* from *Olympus*, or the heaven, wherein he reſides.

JUNO, the queen of heaven, both the ſiſter and wife of Jupiter, was born in the iſland of *Samos*, where ſhe lived while ſhe continued a virgin.

She is repreſented in a chariot drawn by peacocks, with a ſceptre in her right hand, and a crown on her head. She was mother of Vulcan, Mars and Hebe.

Iris was her ſervant and peculiar meſſenger. Becauſe of her ſwiftneſs, ſhe is painted with wings, ſitting on a rainbow. It was her office to unlooſe the ſouls of dying women from the chains of the body.

CHAP. XXVIII.

OF APOLLO AND SOL.

APOLLO is deſcribed as a beardleſs youth, with long hair, crowned with laurel, and ſhining in an embroidered veſtment; holding a bow

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and arrows in his right hand, and a harp in the left. Sometimes he is ſeen with a ſhield on the one hand, and the Graces in the other.

He was the ſon of Jupiter and Latona. By the invention of phyſic, muſic, poetry and rhetoric, he deſervedly preſided over the *Muſes*.

He deſtroyed all the *Cyclops*, the forgers of Jupiter's thunder polts, with his arrows, to revenge the death of his ſon Æſculapius, whom Jupiter had killed with his thunder, becauſe, by the power of phyſic, he reſtored the dead to life again.

Daphne, ſo famous for her modeſty, was changed into a laurel, whilſt Apollo, who paſſionately admired her, was uſing his utmoſt efforts to obtain her. The laurel is the moſt chaſte of trees, which is never corrupted with the violence of heat or cold, but remains always flouriſhing, always pure.

Apollo raiſed the walls of the city of *Troy*, by the muſic of his *harp* alone.

He is called *Cynthius* from the mountain *Cynthus*, in the iſland of Delos; from whence Diana is alſo called Cynthia. He is alſo called *Delius*, from the ſame iſland, becauſe he was born there.

He is called Delphicus from the city Delphi in Bœotia, where he had the moſt famous temple in the world. They ſay that this famous Oracle be-

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came dumb, at the birth of our *Saviour*; and when Auguſtus deſired to know the reaſon of its ſilence, the Oracle anſwered him, that, in Judæa, a child was born, who was the *Son of God*, and had commanded him to depart, and return no more anſwers.

From his exact ſkill in hunting he is called *Pæan*, and armed with arrows. From the ſwiftneſs of his motion, he is called Phœbus.

Sol, who enlightened the world, is eſteemed the ſame as *Apollo*. He was the father of *Phaeton* by *Clymene*; and, as a proof of his paternal affection, promiſed to grant his ſon whatever he ſhould requeſt. The raſh youth aſked the guidance of his chariot for one day. *Sol*, in vain, uſed every argument to diſſuade him from the enterprize; but, having ſworn by the river *Styx*, an oath which it was unlawful for the gods to violate, he unwillingly granted his requeſt, and gave him the neceſſary inſtructions for his behaviour.

Phaeton, tranſported with joy, mounted the chariot, and began to laſh the flaming ſteeds; but they, finding the ignorance of their new driver, ran through the air, and ſet heaven and earth on fire. Jupiter, to prevent a total conflagration, ſtruck Phaeton with thunder from his chariot, and plunged him into the river *Po*. His ſiſters, Phæthuſa, Lam-

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petia, and Phœbe, and alſo Cycnus his friend, immoderately bewailed his death on the banks of the river; and by the pity of the gods, his ſiſters were changed into poplar-trees, and his friend Cycnus into a ſwan.

CHAP. XXIX.

OF MERCURY.

MERCURY, ſon of *Jupiter* and *Maia*, daughter of *Atlas*, was the god of eloquence and merchandize, and meſſenger of the gods.

He is repreſented as a young man, with chearful countenance, an honeſt look and lively eyes; fair, without paint, with winged ſhoes and hat, and holding in his hand a winged rod, bound about with two ſerpents.

He had many remarkable qualities, on account of which they worſhipped him as a god. He is ſaid to have invented letters and the uſe of them. He excelled in eloquence and the faculty of ſpeaking; and therefore was accounted the god of rhetoric and oratory.

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In the art of thieving he far exceeded all the ſharpers that ever have been, and is, therefore, named the *Prince* of tricking. The very day in which he was born, he ſtole away the cows of King Admetus, though attended by Apollo himſelf; who, while he complained of the theft, and bent his bow with an intent of revenge, found himſelf robbed of his quiver and arrows alſo.

He was a wonderful maſter at making peace, and pacified not only mortals, but alſo the gods themſelves, when they quarrelled. This faculty is ſignified by the rod which he holds in his hand.

His chief offices were, to carry the commands of Jupiter, to attend perſons when dying, to unlooſe their ſouls from the chains of the body, and uſher them into the world of ſpirits; likewiſe to revive, and replace into new bodies, thoſe that had already completed their time in the *Elyſian* fields.

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CHAP. XXX.

OF MARS AND BACCHUS.

MARS was the ſon of Jupiter and Juno. He is the god of armies and war, fierce in aſpect, ſtern in countenance, and terrible in dreſs. He ſits in a chariot drawn by two horſes, which are driven by a diſtracted woman. He is covered with armour, and brandiſhes a ſpear in his right hand. Sometimes he is repreſented ſitting on horſeback, formidable with his whip and ſpear, with a cock at his feet, the emblem of watchfulneſs.

His ſervants are *Fear* and *Terror*. *Diſcord* alſo goes before in a tattered garment, and *Clamour* and *Anger* follow him.

Bellona, goddeſs of war, is the companion and wife of Mars. She prepares for him his chariot and horſes when he goes to battle.

BACCHUS, the ſon of *Jupiter* and *Semele*, as ſoon as he was born, was committed to the care of *Sileus* and the *Nymphs* to be brought up; and, in reward for their ſervice, the Nymphs were received into heaven, and there changed into ſtars, called the *Hyades*.

Bacchus

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Bacchus has a red face, ſwoln cheeks, and prominent belly. He appears diſpirited with luxury, and intoxicated with wine. He is crowned with ivy and vine-leaves, and in his hand holds a *thyrſus* for a ſceptre. His chariot is drawn ſometimes by tygers and lions, ſometimes by lynxes and panthers. A drunken band of *Satyrs*, *Demons*, and *Nymphs* preſiding over the wine-preſſes, fairies of the fountains, and prieſteſſes attend him as his guard, and old *Silenus*, riding on an aſs, brings up the rear.

Bacchus firſt planted the vine and drank the juice of the grape. The tillage of the ground, and making of honey are alſo attributed to him.

He is called *Liber*, and *Lyæus*; becauſe wine frees the mind from cares, and thoſe who have drank plentifully ſpeak too often whatever comes into their minds.

CHAP. XXXI.

OF MINERVA AND VENUS.

MINERVA, or *Pallas*, the goddeſs of wiſdom, war, arts, and ſciences, was the daughter of Jupiter. *Vulcan* ſtruck his forehead with a ham-

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mer, and, after three months, he brought forth Minerva.

She was called *Minerva*, as ſome ſay, from the threats of her ſtern and fierce look. Inſtead of a woman's dreſs, ſhe is arrayed in armour; wears a golden head-piece, and on it glittering creſts; a brazen coat of mail covers her breaſt; ſhe brandiſhes a lance in her right hand, and in her left holds a ſhield, whereon is painted the griſly head of Meduſa, one of the Gorgons, rough and formidable with ſnakes.

Upon the head of this goddeſs there was an olive crown, which is the ſymbol of peace; either becauſe war is only made that peace may follow; or becauſe ſhe taught men the uſe of that tree.

The cock and the owl are ſacred to Minerva; the firſt being *expreſſive* of courage and watchfulneſs, and the latter the *emblem* of caution and foreſight.

Her birth from *Jupiter*'s head, is moſt certainly an emblem that all human arts and ſciences are the production of the mind of man, directed by ſuperior wiſdom.

VENUS, the daughter of *Jupiter* and *Dione*, is the goddeſs of beauty, neatneſs, and chearfulneſs,

She

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She is cloathed with a purple mantle, glittering with diamonds. Refulgent with a roſy crown, ſhe is attended by two *Cupids*. The *Graces* ſtand round her, and the lovely Adonis follows after, gently holding up her train. Her chariot is of ivory finely carved, beautifully painted and gilt, faſhioned in the form of a ſhell, and drawn by ſwans, doves and ſwallows, or, ſometimes by ſparrows, as ſhe directs, when ſhe pleaſes to mount it.

She is ſaid to have ſprung from the froth of the ſea; and being laid in a ſhell, as it were in a cradle, to have been drawn by *Zephyrus* upon the iſland of Cyprus, where ſhe was educated. When ſhe grew up, ſhe was carried into heaven, and preſented to the gods, who, being taken with her beauty, all ſtrove to marry her; but at laſt ſhe was betrothed to Vulcan, to whom afterwards ſhe was given in wedlock.

The companions of Venus, were *Hymæneus*, the god of marriage, and *Cupid*, the god of love. She is called the *Leſbian Queen*, from *Leſbos*, in the iſland of Cyprus.

On a diſpute, at a feaſt of the gods, between *Juno*, *Pallas*, and *Venus*, for the pre-eminence of beauty, Jupiter, not being able to bring them to an agreement, referred the deciſion to *Paris*, a

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ſhepherd on Mount Ida, with directions that a golden apple ſhould be given to the faireſt. Paris determined the prize in favour of *Venus*, and aſſigned to her the golden reward. *Venus*, in return for this ſingular regard to her, promiſed Paris Helena, the faireſt beauty in the world. Paris ſailed into Greece with a great fleet, and brought away *Helen*, who had been betrothed to *Menelaus*, King of Sparta; but he being then abſent, Paris carried her away with him to Troy, which brought on the famous ſiege of that city.

CHAP. XXXII.

OF THE TERRESTRIAL DEITIES, TITAN, VULCAN, AND JANUS.

TITAN, the elder brother of *Saturn*, though not a god, claims the firſt place, being the elder ſon of *Cœlus* and *Terra*; and on agreement with *Jupiter*, his younger brother, he yielded to him his birthright, as is before mentioned. His ſons were the *Giants*, called from him *Titans*.

VULCAN,

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VULCAN, the huſband of *Venus*, was ſon of Jupiter and Juno; but being born deformed, he was caſt down from heaven by Jupiter, as ſoon as he was born, and in the fall broke his leg. He was the god of ſubterraneous fires, and preſided over metals.

He firſt made his addreſſes to Minerva, and was refuſed by her. He afterwards married *Venus*, but that goddeſs diſregarded him for his deformity.

Vulcan made the chariot of the Sun, and ſupplied *Jupiter* with thunder. He fixed his forges on mount Ætna, but chiefly in the iſland *Lemnos*, where he worked for the gods, and taught the natives the art of working iron by fire. His forgemen were the *Cyclops*, who are repreſented as having one eye only, in the middle of their forehead. Apollo, it is ſaid, ſlew them all, for having forged the thunder, with which Jupiter ſtruck Æſculapius, the god of phyſic.

The principal temple of *Vulcan* was on mount *Ætna*, and he is painted with a hat of blue colour, the ſymbol of fire. He was called *Mulciber*, or, *Multifer*, from his ſoftening and poliſhing iron.

JANUS, the ſon of *Cœlus* and *Hecate*, had a double face and forehead in one and the ſame head. Hence he got the name of the two-faced god, and

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was said to see things placed behind his back, as well as before his face. In his right hand he holds a key, and in his left a rod; and beneath his feet are twelve altars.

The temple of Janus, at Rome, was held in great veneration, and was kept open in the time of war, and shut in the time of peace. It is remarkable, that, within the space of seven hundred years, this temple was shut only thrice: once by Numa; afterwards by the consuls *Marcus Attilius* and *Titus Manlius*, after a league struck up with the Carthaginians; and, lastly, by *Augustus*, after the victory of *Actium*.

CHAP. XXXIII.

OF THE TERRESTRIAL GODDESSES, LATONA, DIANA, AND CERES.

LATONA was the daughter of Phœbe, and *Cœus* the Titan. On account of her great beauty, she was beloved of Jupiter, by whom she had *Diana* and *Apollo*.

DIANA, goddess of hunting, was the daughter of *Ceres* and *Jupiter*, and sister of *Apollo*. She is usually

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uſually painted in a hunting habit, with a bow in her hand, a quiver full of arrows hanging down from her ſhoulders, and her breaſt covered with the ſkin of a deer. She was the goddeſs of hunting and chaſtity.

She has three different names, and as many offices. In the heavens ſhe is called *Luna* and Phœbe, on the earth *Diana*, and in hell *Hecate*. In the heavens ſhe enlightens all things by her rays. On the earth ſhe ſubdues all the wild beaſts, by her bow and darts; and in hell keeps in ſubjection the ghoſts and ſpirits, by her power and authority.

Many temples were erected to this goddeſs, of which, that of Epheſus was the chief. The woods, groves, and foreſts, were alſo conſecrated to her.

Acteon, grandſon of *Cadmus*, a famous hunter, intruding himſelf, whilſt Diana was bathing in a fountain, the goddeſs changed him into a ſtag, and he was devoured by his dogs *.

CERES, the daughter of *Saturn* and *Ops*, is repreſented as a lady, tall in ſtature, venerable with majeſty, beautified with yellow hair, and crowned with a turban, compoſed of the ears of corn. She holds in her right hand a burning torch, and in her left, a handful of poppies and ears of corn.

* Ovid.

She

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She firſt invented and taught the art of tilling the earth, of ſowing pulſe and corn, and of making bread; whereas before, men only ate acorns. As ſoon as agriculture was introduced, and men began to contend about the limits of thoſe fields, which before were common and uncultivated, ſhe enacted laws, and determined the rights and properties of each perſon, when diſputes aroſe.

Ceres is beautiful, becauſe the earth which ſhe reſembles, gives a very delightful and beautiful ſpectacle to beholders; eſpecially when it is arrayed with plants, diverſified with trees, adorned with flowers, enriched with fruits, and covered with green herbs, when it diſplays the honours of the Spring, and pours forth the gifts of Autumn with a bountiful hand.

She holds a lighted torch, becauſe when Proſerpine was ſtolen away by Pluto, ſhe lighted torches with the flames of mount Ætna, and with them ſought her daughter through the whole world.

Among various nations, the firſt fruits of the earth were offered to *Ceres*, as goddeſs of corn and agriculture.

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CHAP. XXXIV.

OF NEPTUNE, AND OTHER MARINE DEITIES.

NEPTUNE was the ſon of Saturn and Ops, and brother of Jupiter and Pluto. In the diviſion of his father's kingdom by Jupiter, the empire of the ſea was allotted to Neptune.

Having joined with Apollo in a conſpiracy againſt Jupiter, they were both driven from heaven; and, by Jupiter's command, forced to ſerve Laomedon in building the walls of Troy. Neptune, not receiving the reward of his ſervices, ſent a ſea-monſter on the coaſts, which ravaged the country.

Neptune afterwards became charmed with the beauty of *Amphitrite*, but could not for a long time obtain her. At laſt, however, by the aſſiſtance of a dolphin, and the power of flattery, he drew her into marriage. Neptune, as an acknowledgment of this kindneſs, placed the dolphin among the ſtars, and he became a conſtellation.

In a diſpute with Minerva, who ſhould give a name to Athens, the capital city of Greece, he ſtruck the ground with his trident, and produced a horſe;

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horſe; for which reaſon, the Athenians ſacrificed to him that animal.

Neptune is eſteemed governor of the ſea, and father of the rivers and fountains. He is repreſented riding on the ſea in a car, in the form of a ſhell, drawn by ſea-horſes, preceded by Tritons. He holds a trident in his right hand, as an emblem of his ſovereignty, and is attended by the young Tritons and Sea Nymphs.

OCEANUS, a marine deity, deſcended from Cœlus and Veſta, was called, by the ancients, not only the father of rivers, but alſo of animals, and of the gods themſelves.

THETIS, goddeſs of the ſea, and wife of *Oceanus*, is ſaid to have had many ſons; the chief of whom was Nereus, who dwelt in the *Ægean* Sea, and by his wife *Doris*, had fifty daughters, called from him Nereides. Thetis is repreſented ſitting in a chariot, in the form of a ſhell, drawn by dolphins.

AMPHITRITE was daughter of Oceanus and Doris, goddeſs of the ſea, and wife of Neptune. She is by the poets frequently taken for the ſea itſelf.

TRITON, the ſon of *Neptune* and *Amphitrite*, was alſo his companion and trumpeter. In the upper part of his body he bears the reſemblance of a man,

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and of a fish in the lower part. Most of the sea gods, from him, are called Tritons.

The SYRENS were inhabitants of the sea. They had faces of women, but the bodies of flying fish. Their names were *Parthenope*, *Ligæa*, and *Leucosia*. These dwelt near the coast of *Sicily*, and drew to them all passengers by the sweetness of their singing, and then devoured them.

CHAP. XXXV.

OF THE INFERNAL DEITIES, PLUTO AND PROSERPINE.

PLUTO was the son of *Saturn* and *Rhea*, and brother of *Jupiter* and *Neptune*. In the division of his father's kingdom, when he was dethroned by Jupiter, Pluto had the western parts assigned to him, which gave rise to the poetical fable, that he was the god of hell.

He is called *Dis* by the Latins, and *Hades* by the Greeks, which last signifies *dark* and *gloomy*.

He sits on a dark throne, holding a key instead of a sceptre, and wearing a crown of ebony.

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Sometimes he is crowned with a diadem, sometimes with cypress, and sometimes with the daffodil, which flower Proserpine was gathering, when he stole her away.

His horses and chariot are of a black colour; and himself is often painted with a rod in his hand for a sceptre, and covered with a head-piece.

PROSERPINE is queen of hell, the infernal *Juno*, and wife of Pluto. She was daughter of *Jupiter* and *Ceres*.

When none of the goddesses would marry Pluto, because of his deformity, the god being vexed that he was despised, and forced to live a single life, in a rage mounted his chariot, and suddenly sprung up from a den in Sicily, amongst a company of very beautiful virgins, who were gathering flowers in the fields. Pluto, inflamed with the love of Proserpine, carried her off with him, and sunk into the earth, not far from Syracuse, where suddenly a lake arose.

The Nymphs, her companions, being struck with terror, acquainted her mother with the loss of her daughter. Ceres, with lighted torches from mount Ætna, long sought her in vain; but at last, being informed by the Nymph Arethusa, that she was stolen by Pluto, she went down into hell, where she found Proserpine, queen of those dark dominions

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nions. The enraged mother complained to Jupiter of the violence offered to her daughter by his brother Pluto. Jupiter promiſed that ſhe ſhould return to the earth, provided ſhe had eaten nothing in hell. Upon which, Ceres went down rejoicing; and Proſerpine was returning with tranſport, when Aſcalaphus declared, that he ſaw Proſerpine eat ſome grains of a pomegranate, which ſhe gathered in Pluto's orchard. By this diſcovery, her return was ſtopped. The mother, incenſed at this intelligence, changed Aſcalaphus into an owl; and, by her importunate intreaty, extorted from Jupiter, that Proſerpine ſhould live one half of the year with her, and the reſt of the time with her huſband Pluto. Proſerpine afterwards ſo loved this *diſagreeable huſband*, that ſhe became jealous of him, and changed his miſtreſs *Mentha* into the herb named *mint*.

CHAP.

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CHAP. XXXVI.

OF PLUTUS, NOX, CHARON, AND THE TITANS.

PLUTUS, god of riches, is ſaid to be blind, void of judgment, and of a nature quite timorous. All theſe qualities denote ſome peculiar property of this god. He is blind, and void of judgment, in the unequal diſtribution of riches, as he frequently paſſes by good men, whilſt the wicked are loaded with wealth; and timorous, becauſe the rich are conſtantly in fear, and watch over their treaſures with great care and anxiety.

NOX, goddeſs of darkneſs, is the moſt ancient of all the goddeſſes. She married the river *Erebus* in hell, by whom ſhe had many daughters. *Nox* is painted in black robes beſet with ſtars.

CHARON, the ſon of *Erebus* and *Nox*, is the *ferryman* of hell. He is repreſented by the poets as a terrible, grim, dirty, old fellow. According to the fable, he attended with his boat, and, for a ſmall piece of money, carried over the river *Styx* the ſouls of the dead; yet not all promiſcuouſly, but only thoſe whoſe bodies were committed to the grave. The unburied ſhades wandered about the

the ſhores an hundred years, and then were admitted into the boat, and ferried over the lake.

The TITANS or GIANTS were at firſt inhabitants of the earth, who, truſting to their great ſtature and ſtrength, waged war againſt Jupiter, and attempted to dethrone him from the poſſeſſion of heaven. In this battle they heaped up mountains upon mountains, and from thence darted trees of fire into heaven. They hurled alſo prodigious ſtones and ſolid rocks, which falling again upon the earth, or in the ſea, became mountains or iſlands. But, being unſucceſsful in the attempt, and deſtroyed by the thunder of Jupiter, with the aſſiſtance of the other gods, they were driven from the earth, and caſt into hell.

CHAP. XXXVII.

OF THE FATES, FURIES, AND HARPIES.

THE FATES were three in number, daughters of *Erebus* and *Nox*. Theſe were ſaid to preſide over time paſt, preſent, and to come. Their names are *Clotho*, *Lacheſis*, and *Atropos*. Their office

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fice is to ſuperintend the thread of life. *Clotho* holds the diſtaff, and draws the thread, *Lacheſis* turns the ſpindle, and *Atropos* cuts the thread with her ſciſſars; that is, the firſt calls us into life, the ſecond determines our lot and condition, and the third finiſhes our life.

The FURIES, or *Eumenides*, were daughters of *Nox* and *Acheron*. They were three, namely, Alecto, Megæra, and Tiſyphone. Their abode was in hell to torment the wicked. They were armed with blazing torches, and ſurrounded with ſnakes and other inſtruments of horror.

The HARPIES, or birds of prey, were alſo inhabitants of hell. Theſe were indifferently called *Furiæ*, *Ocypete*, and *Lamiæ*. They were inſtruments in the hands of the gods to raiſe wars in the world, and diſturb the peace of mankind.

CHAP. XXXVIII.

OF TARTARUS AND ELYSIUM.

THE infernal regions, the reſidence of *Pluto*, are ſaid to be a ſubterraneous cavern, whither the ſhades or ſouls of mortals deſcended, and were judged

judged by *Minos*, *Æacus*, and *Rhadamanthus*, appointed by Pluto judges of hell. This place contained *Tartarus*, the abode of the unhappy; also *Elysium*, the abode of those that had lived well.

Cerberus, a dog with three heads, was door-keeper, and, covered with *serpents*, always waited at the infernal gate, to prevent mortals from entering, and the *Manes* or Shades from going out.

Charon, as before mentioned, was ferryman of hell, and conducted the departed souls to the tribunal of *Minos*.

CHAP. XXXIX.

OF THE INFERNAL RIVERS.

THE rivers of Hell were, ACHERON, STYX, COCYTUS, PHLEGETHON, and LETHE.

The waters of *Acheron* are extremely muddy and bitter.

Styx is the principal river of hell. It was held in so great veneration by the gods, that whoever broke the oath he had once made by this river, was deprived of his divinity for one hundred years.

Cocytus

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Cocytus is increaſed by the tears of the wicked; and flows with a lamentable noiſe, imitating the miſerable.

Phlegethon ſwells with fiery waves, and rolls ſtreams of fire. The ſouls of the dead, having paſſed over theſe rivers, are carried into *Pluto*'s palace.

Lethe is the river of forgetfulneſs. If the ghoſts of the dead drank the waters of this river, they were ſaid to loſe the remembrance of all that had paſſed in this world.

CHAP. XL.

SINGULAR PUNISHMENTS.

FABLE relates four remarkable puniſhments in Tartarus. 1. *Ixion*, for attempting to ſeduce Juno, was by Jupiter caſt into hell, and condemned to be chained to a wheel, which continually whirled round. 2. The *rebel Giants*, after their defeat by Jupiter, were puniſhed in the ſevereſt manner, for their enormous crimes. The poets, in ſpeaking of theſe monſters, ſay, they had *ſnakes* inſtead

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inſtead of *legs*. 3. Tantalus is repreſented as hanging over the waters, which are always flowing from him; and, at the ſame time, the fineſt fruit almoſt touches his lips, which he is not permitted to taſte. To this eternal torment of hunger and thirſt he was condemned, for having invited the gods to a feaſt, when, to prove their *divinity*, he killed, boiled, and ſerved up the joints of his ſon Pelops, as a repaſt for them. 4. Syſiphus, the ſon of Æolus, is doomed to roll a huge round ſtone to the top of a mountain, whence it immediately deſcends, and makes his labour perpetual. This puniſhment was allotted him, becauſe he revealed the ſecrets of the gods. He was alſo a notorious robber.

CHAP. XLI.

OF THE INFERIOR DEITIES.

THE poets mention ſeveral deities of inferior note, ſtiled *Dii Minores*:

ÆOLUS god of the winds, tempeſts, and hurricanes, was the ſon of *Jupiter* and *Alceſta*.—*Aquilo* and *Boreas* are cold winds of the north.—*Eurus*, or

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the genius of the eaſt winds, preſided over all the eaſtern quarter of the heavens.—*Zephyrus*, or the weſt wind, preſided over the weſt, and is the mildeſt of all the wind deities.—*Auſter*, or *Notus*, the genius of the ſouth wind, was the chief director of the ſouth. Theſe deities were all *brothers*, ſons of *Aſtræus*, the eldeſt brother of *Saturn*, by *Aurora*.

MOMUS, ſon of *Nox* and *Somnus*, was the god of jeſting, banter, and folly. He is repreſented with a maſk and groteſque face. He was rather a jeſter, mocker, or mimic of the gods, than a god himſelf.

MORPHEUS was the god of ſleep.

PAN, ſon of *Mercury* and *Penelope*, was the god of the woods and ſhepherds. He is repreſented half man, and half goat, with a large pair of horns on his head, a crook in one hand, and a pipe, compoſed of reeds, in the other. The *Arcadians* much admired his muſic, and paid him divine honours.—SYLVANUS and FAUNUS were alſo gods of the foreſts, from whom were deſcended the other rural deities, as *Satyrs*, *Sylvans*, *Fauns*, *Nymphs*, or *Dryades*, who were all inhabitants of the woods.

FLORA was the goddeſs of the ſpring and flowers, and wife of Zephyrus. She is repreſented adorned with garlands, and near her is a baſket of flowers.

POMONA

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POMONA preſided over gardens, orchards, and fruit trees. She was beloved of *Vertumnus*, as *Ovid* relates.

TERMINUS was a deity, who preſided over the boundaries of lands, which were held ſo ſacred, that whoever removed a land-mark, or ploughed it up, was ſubject to death.

PRIAPUS was the ſon of *Venus* and *Bacchus*. It was his buſineſs to drive away birds, and guard the fruit and trees.

CHAP. XLII.

OF CUPID, AND OTHER INFERIOR DEITIES.

CUPID, god of love, ſon of *Mars* and *Venus*, is repreſented blind, with a bow in his hand, and a quiver of arrows on his ſhoulders, with which he wounds the hearts of lovers.

HYMENÆUS, or *Hymen*, is the god of marriage; and is repreſented under the figure of a young man, holding a torch in his hand, with a crown of roſes, and ſweet marjoram on his head.

The PENATES and LARES were alſo deemed gods. The firſt preſided over provinces and kingdoms, and the latter over houſes and particular

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families. The *Lares* alſo preſided over the high-ways; and they were wont to ſacrifice to theſe houſhold gods, frankincenſe, wine, bread, corn, and a cock; and, according to ſome writers, a lamb and a hog.

The GENII alſo were ſpirits, or deities, that preſided over all perſons and places. And, indeed, ſo great was the number of theſe inferior gods, that the ancient mythology furniſhed almoſt as many deities as there are things in nature.

ÆSCULAPIUS, ſon of Apollo, was the god of phyſic. He was ſlain by *Jupiter* with a thunder-bolt forged by the *Cyclops*, on the complaint of *Pluto*, for raiſing the dead, or rather recovering men by his ſkill in medicine from their ſickneſs. He was worſhipped under the figure of a ſerpent; and ſometimes he is repreſented ſeated on a throne of gold and ivory, holding a rod environed with a ſerpent, and a dog at his feet.

The CYCLOPS, four in number, were ſons of *Neptune* and *Amphitrite*. They were ſervants of *Vulcan*, and had only one eye placed in the middle of their foreheads.

SILENUS was the foſter father of Bacchus. He is accounted the god of *abſtruſe myſteries* and knowledge. He is repreſented as a fat, old, drunken fellow, riding on an aſs.

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CHAP. XLIII.

OF THE MUSES, GRACES, AND OTHER INFERIOR GODDESSES.

THE MUSES, daughters of Jupiter and Mnemoſyne, goddeſs of memory, were the reputed goddeſſes of the ſeveral arts and ſciences, and preſided over the feaſts and ſolemnities of the gods.

They were the companions of Apollo, and lived with him chiefly on the hills of *Parnaſſus*, *Helicon*, and *Pindus*. The *Hippocrene*, and other fountains at the foot of *Parnaſſus*, were ſacred to them, as were alſo the palm-tree and the laurel. They are repreſented young and very handſome, and are nine in number. Their names are, CLIO, CALLIOPE, ERATO, THALIA, MELPOMENE, TERPSICHORE, EUTERPE, POLYHYMNIA, and URANIA.

Clio preſides over hiſtory, and is ſaid to be the inventreſs of the lute. *Calliope*, ſo called from the ſweetneſs of her voice, preſides over eloquence and heroic poetry. *Erato*, or the *Lovely*, preſides over lyric poetry. *Thalia* is the goddeſs of comedy; *Melpomene*, of tragedy; and *Terpſichore*, or the *Jovial*, of dancing. Euterpe is ſo called, becauſe ſhe im-

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parts joy. She invented the flute, and presided over the music. She is also said to be the patroness of logic. *Polyhymnia* is so called from her multiplicity of songs. She is said to excel in memory, and is the goddess of the ode. *Urania*, or the *celestial muse*, presided over *divine poesy*; and is said to be the inventress of astronomy.

The *Muses* are distinguished by masks, lyres, garlands, globes, and other emblems, expressive of their different offices or accomplishments.

Pegasus, the famous horse of ancient fable, was an attendant on *Apollo* and the *Muses*. He inhabited the mountains of *Parnassus* and *Helicon*. It is said that he sprung from the blood of *Medusa*, killed by Perseus; and he is represented by the poets with wings to his sides, expressive of the flights and elevation of the mind in poetry. When Perseus struck off the head of *Medusa*, the horse *Pegasus* struck the ground with his foot; upon which, at the bottom of the hill, a fountain arose named *Hippocrene*. This fountain was sacred to Apollo and the Muses.

The GRACES, called also *Charites*, were three sisters, daughters of *Jupiter* and *Eurynome*, or *Venus*. The first was named *Aglaia* from her chearfulness; the second *Thalia*, from her perpetual verdure, and the third *Euphrosyne*, from delight. They were compa-

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companions of the Muſes and Mercury, and attendants on Venus. They are repreſented with pleaſing countenances, and without garments, to denote that our actions ſhould be free and candid, not covered over with diſſimulation or deceit. A chain binds their arms together, to expreſs that the link of love and harmony ſhould be united and unbroken.

THEMIS, ASTREA, and NEMESIS, were three goddeſſes: the firſt of law and peace; the ſecond of juſtice; and the third, a rewarder of virtue, and puniſher of vice.

CHAP. XLIV.

OF THE ÆGYPTIAN DEITIES.

OSIRIS, *Apis*, and *Serapis*, are different names of one and the ſame deity, ſon of Jupiter by Niobe, and huſband to Iſis.

Their ſon ORUS was deemed, by the *Ægyptians*, the *Protector of the River Nile*, the *Averter of Evils*, *Governor of the World*, and the *Author* of *Plenty*.

Theſe deities of the Ægyptians were held in the greateſt veneration. Temples were erected, and

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divine honours paid to Oſiris under the figure of an ox; and the prieſteſſes of Iſis ſacrificed to that goddeſs under different ſhapes, according to the purpoſes for which they were intended.

As fable is ſaid to take its origin from the *Ægyptians*, it will appear, from their intercourſe with the Jews, long reſident in *Ægypt*, that a mixture of true religion and error increaſed that falſe worſhip, which firſt prevailed in that country, and afterwards ſpread into Rome, and the more diſtant parts of the world.

Theſe gods of the Ægyptians were worſhipped under various names and characters, according to the prevailing opinion of different countries, or ſome other incident. Thus, according to *Herodotus*, *Oſiris* and *Bacchus* are the ſame; and *Iſis* is ſaid to be the ſame with the Roman *Cybele*, *Ceres*, *Minerva*, and *Luna*. Orus alſo was the ſymbol of light, and was figured as a winged boy. He was named the *Hermes* of the Greeks, and the *Apollo* and *Cupid* of the Romans.

CHAP.

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CHAP. XLV.

OF THE PANTHEON.

BOTH in Ægypt and Rome, each deity had a temple, where the moſt ſolemn ſacrifices were made to them, according to the prevailing notion of their power and influence.

The worſhip of theſe gods ſo far prevailed among the Romans, that they erected to their honour a public edifice, named the PANTHEON, in which, as a general repoſitory, were placed the ſtatues of their ſeveral deities, with their reſpective ſymbols. *Jupiter* was diſtinguiſhed by a thunder-bolt; *Juno* by a crown; *Mars* by a helmet; *Apollo*, or the *Sun*, by his beams; *Diana*, or the *Moon*, by a creſcent; *Ceres* by a *cornucopia*, or horn of plenty, or an ear of corn; *Cupid* by a bundle of arrows; *Mercury* by the wings on his feet, and a *caduceus*, or wand, in his hand; *Bacchus* by the ivy; *Venus* by the beauty of her perſon; and the reſt had the like diſtinguiſhing characters placed above their ſtatues, or in their hands, according to the received opinion of the people, or the ingenuity of the artiſt.

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CHAP. XLVI.

OF ORACLES.

THE ORACLES of the ancients were deemed predictions, and myſterious declarations of the will of the gods. It may, with a kind of certainty be admitted, that the natural bent of the mind of man to ſearch into futurity, gave riſe to this inſtitution.

To whatever cauſe, however, the origin may be aſcribed, the inſtitution of Oracles became general, among the idolatrous nations, and increaſed over the face of the whole earth.

Not to mention other nations, the *Oracles* of the *Ægyptians* and *Greeks* were numerous, eſpecially of the latter people; at leaſt we have a more full account of them.

The *Oracle* of *Dodona*, a city of Epirus in Greece, was ſacred to *Jupiter*. The *Oracle* of *Jupiter Hammon* was alſo of ancient date, and famous in *Lybia*. The *Oracle* of *Apollo*, at Heliopolis, was of great note. The *Oracle* alſo of *Apollo* at *Delphi*, if not the moſt ancient, was the moſt celebrated of all *Greece*, inſomuch that it was called *the Oracle of the whole earth*.

And,

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And, indeed, ſo eſtabliſhed was the character of theſe oracular declarations, that the enacting laws, the reformation of government, alſo peace or war, were not undertaken by ſtates or princes; but even in the more common concerns of life, no material buſineſs was entered upon, without the ſanction of the *Oracle*.

Each Oracle had its prieſt or prieſteſs, who delivered out the anſwers of the gods. Theſe anſwers, for the moſt part, were in verſe, and couched under ſuch myſterious terms, that they admitted of a double interpretation; inſomuch, that whether the prediction was completed, or the expectation of the ſupplicant diſappointed, the *Oracle* was clear from blame.

The *Oracle* of *Apollo* at Delphi, being in the greateſt reputation, was reſorted to from all parts. The prieſteſs of Apollo was named Pythia, from the ſerpent Python, killed by that god, as is before mentioned.

The offerings to the gods, on theſe applications, were liberal, according to the ability of the ſupplicant, or the importance of the anſwer required; and, it is ſaid, the temple and city of Delphi eſpecially, was, by theſe means, filled with immenſe treaſure.

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The principal *Oracle* of the *Ægyptians* was at Memphis, a royal city of Ægypt, where they erected an altar, and worſhipped their god *Apis*, under the figure of an *ox*. His wife *Iſis* had alſo worſhip, and her prieſts were called *Iſiaci*.

CHAP. XLVII.

OF THE SYBILLINE ORACLES.

THE Sybilline Oracles were certain women, whom the ancients believed to be endued with the gift of prophecy. They are ſaid to be ten in number, and were famous in all lands. They had no fixed reſidence, but travelled into different countries, and delivered their predictions in verſe, in the Greek tongue. One of theſe *Sybils*, named *Erythræa*, or Cumæa, from *Cuma*, a city in the *Ionian* ſea, according to *Virgil*, came into *Italy*, and was held in the higheſt eſteem by the *Romans*, who conſulted the Oracle of the *Sybil* on all occaſions that related to the welfare of the republic.

CHAP.

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CHAP. XLVIII.

OF AUGURY.

AUGURY, or the art of divination by birds, the meteors of the heavens, or the entrails of beaſts, was held in the higheſt veneration by the idolatrous nations. The Jews were not free from idolatry in the time of Moſes; and we read alſo in the ſacred writings, that Saul, being vexed in ſpirit, applied to the *Seers*, or perſons ſkilled in the knowledge of futurity.

But not to go ſo far back, Romulus and Remus conſulted the Auguries, before they built Rome; and the foundation of that city was determined by the flight of birds. Numa eſtabliſhed a college of Augurs, and confirmed his regulation of the Roman ſtate by their ſanction.

It appears alſo in the hiſtory of that people, that no national concern was entered upon, without firſt conſulting the Auguries; and, according to the propitious or bad omen, they made peace or war, and appointed magiſtrates. Indeed, the Augurs, and their declarations, were held in ſo high regard by the Romans, that whoever contemned them, was accounted impious and profane. To conclude, *divina-*

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divination, or the ſpirit of prediction, made a conſiderable part of the pagan theology, eſpecially among the Romans, thoſe lords of the world, who fell into the general deluſion, and adopted almoſt all the gods of every people they ſubdued.

CHAP. XLIX.

OF DEMI-GODS OR HEROES.

THE title of *hero* was given by the Greeks to thoſe who had made themſelves famous. A demi-god was a man deſcended of a god, or goddeſs, by a mortal; of which there were great numbers. Æneas, Ulyſſes, Hercules, Theſeus, Achilles and Jaſon, were the moſt celebrated.

Æneas was a Trojan prince, ſon of Anchiſes and the goddeſs Venus. He is memorable for his grateful care of his aged father, whom he bore through the flames of Troy upon his ſhoulders, at the hazard of his life, and that of his ſon Aſcanius, a child, who was obliged to cling to his garments to eſcape them. Arriving in Italy, he married Lavinia, the daughter of Latinus, king of the Latins,

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tins, and built Lavinium, ſo named after his wife. He died in the year before Chriſt 1197.

Ulyſſes, on his return by ſea from the Trojan war to the iſland of Ithaca, of which he was king, was met by the *Syrens*, who uſed every effort to ſtop him; but, that he might not be ſurpriſed by their melodious voices, he ſtopped his ears, and cauſed himſelf to be tied to the maſt of the ſhip.

His wife *Penelope*, who was beſieged by a numerous train of lovers in the abſence of her huſband, delivered herſelf by artifice. She promiſed to make choice of one of them as ſoon as a piece of tapeſtry, on which ſhe was at work, ſhould be finiſhed; but every night ſhe unwove all ſhe had done the preceding day.

Hercules was the ſon of Jupiter and *Alcmene*, wife of Amphytrion. He was expoſed, through the whole courſe of his life, to perform the moſt dangerous adventures, by the malignity of Juno, and the fatality of his birth. His principal exploits are termed, by way of eminence, the *twelve labours of Hercules*.

Euryſtheus, who ſucceeded Perſeus, in the kingdom of Argos, had conceived a jealouſy of Hercules, and impoſed upon him, as fabulous hiſtory relates, the following hazardous enterpriſes. 1. He overcame the lion of Nemæa, whoſe ſkin he afterwards

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wards wore. 2. He deſtroyed the hydra with ſeven heads. 3. He took, on the mountain Erimanthus, in Arcadia, a wild boar that had made dreadful havock round the country, and dragged it alive to Euryſtheus. 4. He catched an hind with golden horns and brazen hoofs, after hunting her a year on foot. 5. He cleanſed the ſtable of Augeas, king of Elis, in which 3000 oxen had ſtood for many years. 6. He deſtroyed the harpies, or birds of prey. 7. He delivered Prometheus from mount Caucaſus, and killed the eagle which fed upon his liver. 8. He killed Diomedes, and the horſes which he fed on human fleſh. 9. He ſubdued the giant Geryon, and carried away his flock of cattle. 10. He conquered the army of the Amazons, and took from Hippolite their queen, her girdle, and married her to Theſeus. 11. He went down to hell, and deſtroyed the three-headed dog Cerberus. 12. He killed the dragon, which defended the garden of the Heſperides, and brought from thence the *golden apples*.

Beſides theſe, and many other notable atchievements, Hercules is ſaid to have taken the *heavens upon his ſhoulders*, in order to eaſe *Atlas*, the ſon of Uranus, a great obſerver of the ſtars, and *the firſt who repreſented the world by a ſphere*.

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This famous hero ended his life in the following manner. Having ſlain the centaur Neſſus, the dying monſter gave Dejanira, Hercules's wife, a garment dipt in his own blood, as a preſervative for love. This Dejanira ſoon after ſent him to regain his affections. The hero had no ſooner put on the poiſoned ſhirt, than he was ſeized with violent and incurable pains; therefore, making a funeral pile on mount Oëta, he ſet fire to it, and cloſed, with the moſt dreadful agonies, a life of hardſhips for the good of his fellow-creatures.

Theſeus was the ſon of Ægeus, king of Athens, and Æthra, daughter of the wiſe Pitheus, at whoſe court he was brought up by Trœzenus. He killed the *Minotaur*, a monſter which had a bull's head, and all its lower parts human. It was incloſed in the labyrinth at Crete, made by Dædalus, by the order of Minos, king of that iſland, the inhabitants of which ſacrificed men to Jupiter and Saturn; and where many of the gods and goddeſſes were born.

Perſeus was the ſon of Jupiter and Danae, daughter of Acriſius, king of Argos. He was king of the Mycenians. He had the wings of Mercury, the ſhield of Minerva, the helmet of Pluto, and a ſword forged by Vulcan. Thus armed, he overcame and cut off the head of Meduſa, which, according

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cording to the poets, was ſurrounded by ſerpents inſtead of hair, and turned to ſtones thoſe who had the raſhneſs to look upon it. He alſo delivered Andromeda, daughter of Cepheus, king of Ethiopia, from a monſter, and afterwards married her. He lived about 1348 years before Chriſt.

Achilles was the ſon of the goddeſs Thetis, daughter of Nereus and Doris, the moſt beautiful of the Nereides; and Peleus, ſon of the famous Æacus, king of Egina, and the nymph Endeis, daughter of Chyron. He was educated by the centaur * Chiron. His mother dipped him in the Styx, all but the heel, by which ſhe held him, to make him invulnerable. He was ſlain at the ſiege of Troy by Paris, whoſe arrows ſhot him in the heel, in the year before Chriſt 1180.

Jaſon was the ſon of Eſon and Alcimede. Upon the death of his father, he was placed under the tuition of Pelias, at whoſe perſuaſion he undertook the Argonautic expedition to Colchis for the golden fleece, which he carried away about 937 years before Chriſt.

The *golden fleece* was the ſkin and fleece of a ram, called golden, becauſe it was of a golden colour. It was guarded by bulls that breathed fire from their

* A Centaur is a monſter, half man and half horſe.

noſtrils;

noſtrils; and by a large and watchful dragon, in the grove of Mars.

Pelias, the ſon of Neptune and Tyro, was brought up by a mare, and became the moſt cruel of all men. He not only uſurped the eſtates of Jaſor, but cauſed him to be impriſoned. He ſacrificed his mother-in-law to Juno, and put to death the wife and children of Eſon; but Jaſon was ſaved from his fury, and educated in private.

CHAP. L.

ON THE BEAUTY AND UTILITY OF FABULOUS HISTORY.

SOME weak, though perhaps well-meaning men, condemn the delightful fictions, with which Homer and Heſiod, and their poetical imitators, have enriched and embelliſhed their works. But although theſe fictions did not contain many uſeful inſtructions, and many important truths, would there be any reaſon to attack and deſtroy a ſyſtem, which peoples and animates nature, and makes a *ſolemn temple* of the vaſt univerſe?

Theſe

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These flowers, whose varied and shining beauty we so much admire, are the *tears* of Aurora. It is the *breath* of Zephyrus which gently agitates the *leaves*. The *soft* murmurs of the waters are the *sighs* of the Naïades.

A god impels the *wind*; a god pours out the *rivers*; *grapes* are the gift of Bacchus; Ceres presides over the *harvest*; *orchards* are the care of Pomona. Does a shepherd sound his reed on the summit of a mountain? It is Pan who, with his pastoral pipe, returns the *pleasing lay*. When the sportsman's horn rouses the attentive ear, it is Diana, armed with her bow and quiver, and more *nimble* than the *stag* that she pursues, who takes the diversion of the chace. The sun is a god, who, riding on a car of fire, diffuses his light through the world. The stars are so many divinities, who measure with their *golden beams* the regular progress of fire. The moon presides over the *silence* of the night, and consoles the world for the absence of her brother. Neptune reigns in the *sea*, surrounded by the Nereides, who dance to the joyous shells of the Tritons.

In the highest heaven is seated Jupiter, the master and *father* of men and gods. Under his feet roll the *thunders*, forged by the Cyclops in the *caverns* of Ætna. His *smile* rejoices nature, and his *nod* shakes the

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the foundation of Olympus. Surrounding the throne of their ſovereign, the other deities *quaff nectar* from a cup preſented to them by the young and beautiful Hebe. In the middle of the great circle ſhines, with diſtinguiſhed luſtre, the goddeſs of beauty, adorned with a ſplendid girdle, in which the graces appear elegant and chearful; and in her hand is a ſmiling boy, the picture of health and contentment.

Sweet illuſions of the fancy! Pleaſing errors of the mind! What objects of pity are thoſe cold and inſenſible hearts, who have never felt your charms! And how deſtitute of taſte muſt thoſe perſons be, who would deſtroy a world that has ſo long been the treaſury of the arts; a world imaginary indeed, but delightful, and whoſe ideal pleaſures are ſo well fitted to compenſate for the real troubles and miſeries of the world in which we live.

CHAP. LI.

OF CHRONOLOGY.

CHRONOLOGY is a ſcience which treats of time, and ſhews the different meaſures or computations of it, that have obtained in different nations.

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nations. It enables us truly to date the beginning and end of the reigns of princes, the births and deaths of eminent perſons, the revolutions of empires and kingdoms, battles, ſieges, or any other remarkable events. Without chronology, that is, without diſtinguiſhing the times of events as clearly as the nature of the caſe will well admit, all hiſtory would be little better than a *heap* of confuſion, deſtitute of light, order, or beauty.

In the ſtudy of hiſtory, an *exact chronology* is like Ariadne's *clue*, which guides us through the different windings of the *labyrinth*; and the mind being thus conducted, the ideas we obtain from reading are more diſtinct, and more eaſily fixed in the memory.

In the chronology of ancient kingdoms, it muſt be confeſſed there is the utmoſt uncertainty, ariſing chiefly from the vanity of each in claiming the greateſt antiquity. Thus the prieſts of Egypt, as Herodotus informs us, reckon from the reign of Menes to that of Sethon 341 generations, three of which they ſuppoſed equal to a hundred years; ſo that, according to this computation, the whole time, from one reign to the other, was 11,340 years. The Chaldeans piqued themſelves on their antiquity, pretending to have obſerved the ſtars 473 thouſand years. Other eaſtern nations made the

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like extravagant pretenſions; all which were favoured by their having no exact accounts of time.

The chronology of the ancient Greeks is equally uncertain. Their writings are full of fables, being all in verſe, from which fiction is inſeparable, till the conqueſt of Aſia by Cyrus the Perſian. They did not begin to ſet down the generations, reigns and ſucceſſions, in numbers of years, till ſome time after the death of Alexander the Great. This makes their chronology very uncertain; and indeed ſuch it was reputed by the Greeks themſelves, as appears from ſeveral paſſages in Plutarch.

In the chronology of the Latins we find ſtill greater uncertainty. In a word, not one of the European nations had any chronology at all, till the time of the Perſian empire, which began 536 years before the birth of Chriſt; and whatever chronology they now have of more ancient times, has been framed ſince by reaſoning and conjecture. Therefore, on a ſtrict and impartial examination, the Jewiſh records, excluſive of their divine authority, will appear to be the moſt certain and authentic, and conſequently the ſureſt foundation of chronology.

CHAP.

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CHAP. LII.

OF TIME AND ITS PARTS.

TIME is diſtinguiſhed into *abſolute* and *relative*. Abſolute time is conſidered as in itſelf, and without any relation to bodies or their motions. This flows equally, never proceeding either faſter or ſlower. Relative time is that which is meaſured or eſtimated by certain motions, as thoſe of the ſun, moon, clocks and watches. This is otherwiſe called *apparent* or *vulgar* time.

The uſual diviſions of time are years, months, weeks, days, hours, minutes, and ſeconds; beſides periods, centuries, and cycles.

CHAP. LIII.

OF YEARS.

THE completeſt period of time is a year, in which all the ſeaſons return in ſucceſſion, and begin anew. It is that ſpace of time wherein the ſun finiſhes his courſe through the ecliptic, returning to the ſame point of it, from which he had departed.

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departed. This is called the *ſolar year*; and conſiſts, according to our account, of 365 days, five hours, and forty-nine minutes. This is properly the *tropical* or *natural* year. But that ſpace of time in which the ſun having departed from any fixed ſtar, returns to the ſame again, is called the *ſidereal* year, and contains 365 days, ſix hours, and ten minutes.

A *lunar* year is that ſpace of time, in which the moon performs twelve complete revolutions round the earth, called *Lunations*. This year contains 354 days, eight hours, forty-eight minutes, and thirty-eight ſeconds.

Both the *ſolar* and *lunar* years above deſcribed, are termed aſtronomical, as depending on the principles and obſervations of Aſtronomy.

A *civil* year is the legal year, or that which each nation or government has appointed for common uſe. This is made to conſiſt of a certain number of whole days, without any odd hours or minutes, to render the computation of time more eaſy. It is diſtinguiſhed into *common* and *biſſextile*. The *common* year conſiſts of 365 days; and the *biſſextile*, or leap-year, which is every fourth, of 366.

The addition of a day to every fourth year is to make the *civil* year keep pace with the *natural* one; for the ſix hours, or thereabouts, by which the

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latter exceeds the former, in four years make a whole day; and therefore every leap-year the month of February has 29 days, which in the common year has but 28.

The intercalary, or additional day to every fourth year, was firſt appointed by Julius Cæſar, who ordered it to be inſerted after the 24th of February, which was the ſixth of the calends of March, according to the Roman way of reckoning. This year, therefore, they reckoned the 24th of February twice over, having, as they expreſſed it, *bis ſexto calendas Martias*; and hence the year had the name of biſſextile. But amongſt us, this intercalation is not made by telling the 24th of February twice, but by adding a day to the end of that month.

It is called *leap-year*, becauſe in the common years any fixed day of the month changes ſucceſſively the day of the week; but in the *biſſextile* it ſkips or *leaps* over one day. For inſtance, ſuppoſe the 1ſt of May in a common year falls on Tueſday, if the next be a common year it will be on a Wedneſday; but if it be a leap-year, the adding of a day will cauſe it to ſkip over Wedneſday, and fall on Thurſday.

In order to know whether any particular year be leap-year or not, divide it by four, and the remainder, if there be any, ſhews how many years have

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have elapsed since leap-year; and, if there be none, then it is leap-year. Or you may omit the hundreds and thousands, and divide only the units and tens by four, and the result will be the same. For example; divide 1792 by 4, the remainder is 0; or divide only 92 by 4, the remainder is likewise 0; consequently 1792 is leap-year. Divide 1793 by 4, the remainder is 1; or divide only 93 by 4, the remainder is likewise 1; consequently 1793 is the first year after leap-year.

The *lunar* year, as instituted by Romulus, the founder of Rome, consisted but of ten months; but as this was short of the sun's period by two months, these were afterwards added by his successor, Numa Pompilius, and were called January and February. By these means the Roman year consisted of twelve months. But the months of this year being only lunar months, of 29 ½ days each, this *civil lunar* year consisted but of 354 days. The sun, however, in revolving once through the ecliptic, was found, in process of time, to take up 365 days, or eleven days more than the lunar year. These were added to it by Julius Cæsar, and on that account it was called the *Julian year*.

The *Gregorian year* is a correction of the Julian, made by Pope Gregory XIII. and that with very good reason; for the Julian year of 365 days and

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six hours exceeding the true *solar year* by eleven minutes, this excess in 131 years amounts to a whole day. The council of Nice, in the year of Christ 325, appointed the celebration of Easter to be always on the first Sunday after the full moon that came next after the vernal equinox, which was then on the 21st of March. Pope Gregory, however, in the year of our Lord 1582, observed that the above-mentioned fault of the Julian year had thrown the equinoxes ten days more backward, than they were at the time of the said council, so that the vernal equinox was then on the 11th of March. This occasioned great irregularity with respect to the time of celebrating *Easter*, and consequently all other *Moveable Feasts*. The Pope, therefore, to correct this error, ordered ten days to be suppressed in the month of October 1582, that so the equinox might be reduced to the 21st of March, on which day it fell at the time of the Nicene council. And that this variation might not happen again, it was further ordained, that every hundredth year, which in the Julian account was a leap-year, should in this be only a common year, and consist but of 365 days; but as that was too much, every four hundredth year was to remain a leap-year or bissextile.

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This reformation of the calendar is called the Gregorian account, or New Stile; and according to this ſtile was the calendar rectified in England in 1752, by throwing out eleven days in the month of September, as from the council of Nice to that year, 1427 years had elapſed; and, beſides, the beginning of the civil year was fixed to the firſt day of January.

This emendation adjuſts the year and ſeaſons pretty near the truth, and has been received not only in all popiſh countries, but in Holland, Denmark, Sweden, England, and the Proteſtant ſtates of Germany.

CHAP. LIV.

FORMS OF CIVIL YEARS.

THERE have been, and ſtill are, various forms of *civil* years, in different nations, four of which I ſhall take ſome notice of.

1. The *ancient Roman year* of Romulus conſiſted of ten months, namely, *Martius* of 31 days, *Aprilis* of 30, *Maius* of 31, *Junius* of 30, *Quintilis* of 31,

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Sextilis of 30, *September* of 30, *October* of 31, *November* of 30, *December* of 30; in all 304 days.

2. The Roman year of *Numa* consisted of twelve months. *Januarius* had 29 days, *Februarius* 28, *Martius* 31, *Aprilis* 29, *Maius* 31, *Junius* 29, *Quintilis* 31, *Sextilis* 29, *September* 29, *October* 31, *November* 29, *December* 29; in all 355.

The months called Quintilis and Sextilis, from their order in Romulus's year, were changed into Julius and Augustus *, in honour of Julius Cæsar and his successor Augustus.

3. The *Julian* year consists of twelve months, viz. *January* of 31 days, *February* of 28, *March* of 31, *April* of 30, *May* of 31, *June* of 30, *July* of 31, *August* of 31, *September* of 30, *October* of 31, *November* of 30, *December* of 31; in all 365.

Every fourth year, in the Julian account, has 366 days, February then having 29, as we have before observed.

The *Gregorian* year has the same number of months and days as the Julian, the only difference being that each month in the former begins eleven days sooner than in the latter.

4. The *Jewish* year consists of twelve months. *Nisan* or *Abib* has 30 days, *Jiar* or *Zius*, 29, *Siban*

* Our July and August.

or *Sivan*, 30, *Thamus* or *Tamus*, 29, *Ab* 30, *Elul* 29, *Tisri* or *Ethanim*, 30, *Marcheſvan* or *Bul*, 29, *Ciſleu* 30, *Tebeth* 29, *Shebat* or *Schebeth*, 30, *Adar* 29; in all 354.

This is made to agree with the *ſolar year*, by adding eleven, and ſometimes twelve days.

It may not be amiſs to obſerve, that as the form of the year is various among different nations, ſo likewiſe is its beginning. The Jews, as moſt other nations of the Eaſt, had a civil year, which commenced with the new moon in September; and an eccleſiaſtical year, which commenced from the new moon in March. The Perſians begin their year in the month anſwering to our June. The Chineſe, and moſt of the Indians, begin it with the firſt moon in March; and the Greeks with the new moon that happens next after the ſummer ſolſtice.

In England, the civil or legal year formerly commenced on the 25th day of March, and the hiſtorical year on the firſt day of January. But ſince the alteration of the ſtile, in 1752, the civil year, in this country, as I obſerved before, has likewiſe begun on the firſt of January.

From what is ſaid of the patriarchs having lived ſo many centuries, and ſome even to the age of nine hundred years, may we not believe that the

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years were then *ſhorter* than at preſent? By no means. For we learn from Moſes, that the year conſiſted then, as now, of twelve months. In his hiſtory of the deluge, he tells us, that after the rains, which began on the 17th day of the *ſecond* month, had fallen upon the earth for the ſpace of forty days and forty nights, it was only in the *ſeventh* month that the ark, which floated upon the waters, reſted upon Ararat, a mountain of Armenia; and, in the *tenth*, that land began to appear.

The changes and varieties that happen in nature, by the annual revolution of the earth round the ſun, are called the ſeaſons. Spring, Summer, Autumn, and Winter are the names of the ſeaſons, and each ſeaſon continues three months. Spring begins on the 21ſt of March, Summer on the 21ſt of June, Autumn on the 23d of September, and Winter on the 21ſt of December.

CHAP.

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CHAP. LV.

OF MONTHS.

THE first and principal division of the year is into parts called months, which are usually twelve; and these are either *astronomical* or *civil*.

An *astronomical* or *natural* month is that which is measured exactly by the motion of the sun or moon, and is accordingly either *lunar* or *solar*.

A *lunar* month is the time the moon takes to revolve round the earth, which she performs in twenty-seven days, seven hours, forty-three minutes, and eight seconds.

A *solar* month is that space of time in which the sun runs through one of the signs of the *Zodiac*. Now as the apparent motion of the sun is sometimes slower and sometimes faster, these months must consequently be unequal. But, as he constantly travels through all the twelve signs in 365 days, five hours, and forty-nine minutes, the quantity of a mean solar month is found by dividing that number by twelve. And hence it appears that each of these months, one with another, contains thirty days, ten hours, twenty-nine minutes, and five seconds.

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Civil months are those which are framed to serve the uses of life, being made to consist of a certain number of whole days, approaching nearly to the quantity of astronomical months, either lunar or solar.

Civil lunar months consist alternately of twenty-nine and thirty days; so that two of them are equal to two astronomical ones, excepting the odd minutes.

Civil solar months usually consist of thirty and thirty-one days alternately, except one of the twelve, which every fourth year has twenty-nine days, in others but twenty-eight.

CHAP. LVI.

OF WEEKS AND DAYS.

A Month is divided into four parts called weeks, each consisting of seven parts called days. Of these months there are thirteen in a Julian year, and one day over; of weeks there are fifty-two, and of days 365, as before observed.

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The days of the week are called Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. To these days the Pagans gave the names of the sun, moon, and planets; to the first the name of the *Sun*, to the second of the *Moon*, to the third of *Mars*, to the fourth of *Mercury*, to the fifth of *Jupiter*, to the sixth of *Venus*, and to the seventh of *Saturn*.

All nations do not reckon the days in the same order. The Christians count from Sunday, in memory of the resurrection of our Saviour, the Jews from Saturday, and the Mahometans from Friday.

A day is either *artificial* or *natural*. An *artificial* day is the space of time, which passes between the sun's rising and setting, or the time of his stay above the horizon. In opposition to which, the time between his setting and rising, or his duration under the horizon, is called *night*.—A *natural* day comprehends both, being the time in which the sun makes one entire revolution; or, to speak more properly, the time in which the earth revolves once about its axis.

The *natural* day is divided into morning, noon, evening, and midnight; and consists of twenty-four hours.

The present Greeks begin their day at sun-rising, as did the ancient Babylonians, Persians, Syrians,

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and moſt other eaſtern nations. The modern Italians and Chineſe reckon it from ſun-ſetting; as did the ancient Jews, Athenians, Bohemians, and Sileſians. The Arabians and modern aſtronomers begin the day at noon. The Engliſh, French, Dutch, Germans, Spaniards, Portugueſe, and Egyptians, begin it at midnight.

The length of the day and night is *equal*, in England, *twice* every year, once on the 21ſt of March, and again on the 21ſt of September. Both theſe times are called the *equinoxes*.

Thoſe intenſely hot days between the 19th of July and the 28th of Auguſt, are called *dog-days*, becauſe the ſtar called the *canicular*, or the great dog-ſtar, during that time, riſes and ſets with the ſun.

The *longeſt* day is on the 21ſt of June, at the beginning of Summer, after which the days begin gradually to decreaſe. This is called the *ſummer ſolſtice*, becauſe then the ſun ſtops ſhort in his journey towards the north, and begins to return ſouthward.

The *ſhorteſt* day is on the 21ſt of December, at the beginning of winter, after which the days begin gradually to increaſe. This is called the *winter ſolſtice*, becauſe then the ſun ſtops ſhort in his courſe

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courſe towards the ſouth, and begins to return northward.

This change, however, is not the ſame in every part of the earth. There are, for example, ſome countries, where the length of the day and night is always exactly, or nearly the ſame *; and others where the night continues always ſix months, and the day conſequently as many †.

The *Romans* divided their months into *calends*, *nones*, and *ides*; calling the firſt day of every month its *calends*.

CHAP. LVII.

OF HOURS, MINUTES, AND SECONDS.

AN *hour* is the twenty-fourth part of a natural day. Different people reckon the hours in a different manner. Babyloniſh hours are thoſe, which are counted from ſun-riſing in a continued ſeries of twenty-four. Italian hours are thoſe reckoned from ſun-ſetting in a like ſeries. Eu-

* At the Equator. † At the Poles.

ropean

ropean hours are those counted from midnight, twelve from thence to noon, and from noon to midnight twelve more. Those which commence their order from noon, are called *astronomical*, because used by astronomers.

An *hour* is usually divided into sixty equal parts called *minutes*; each minute into sixty *seconds*; these again into sixty *thirds*, and so on. The Jews, Chaldæans, Arabs, and other eastern people, divide the hours into a *thousand* and *eighty* scruples, eighteen whereof are equal to our minute.

CHAP. LVIII.

OF CYCLES, AND THE DOMINICAL LETTER.

A Cycle is a circle of years, months and days, used by chronologers, to signify a perpetual round or circulation of the same parts of time, proceeding orderly from first to last, and recurring again from last to first, successively, and without interruption.

As the annual motion of the sun, and other heavenly bodies, cannot be measured exactly without any remainder of minutes, seconds, &c. to swallow up

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up theſe fractions in whole numbers, that is, ſuch as only expreſs days and years, *cycles* have been invented; which, comprehending ſeveral revolutions of the ſame body, replace it, after a certain number of years, in the ſame point of the heavens whence it firſt departed; or, which is the ſame thing, in the ſame place of the civil calendar.

The moſt famous cycles are, the *Cycle of the Moon*, the *Cycle of the Sun*, and the *Cycle of Indiction*.

The cycle of the moon, or *lunar cycle*, called alſo the *Metonic* cycle, from its inventor *Meton*, an Athenian, is a circle or revolution of nineteen years, in which time the new and full moons are ſuppoſed to return to the ſame day of the month in the Julian calendar.

The cycle of the ſun, or *ſolar cycle*, is a revolution of twenty-eight years. When theſe are elapſed, the *Dominical*, or Sunday Letters in the calendar, return into their former place, and proceed in the ſame order as before. It is from theſe *Sunday Letters*, and not from any regard to the ſun's courſe, that the cycle has obtained its name.

The ſeven firſt letters of the alphabet, A, B, C, D, E, F, G, are uſed in our almanacks to denote the days of the week in order, from the firſt to the ſeventh, throughout the year. Now that which

ſtands

ſtands againſt Sunday, or the Lord's-day, in Latin *Dies Dominica*, is called the *Dominical Letter*, and ſerves to denote that day, as the other letters do the other days of the week.

The Dominical Letter is different every year. As the common year conſiſts of 365 days, that is, fifty-two weeks, and one day, it is evident the year muſt begin and end on the ſame day of the week, and therefore the next year will begin on the day following. This occaſions the firſt Sunday in January to fall every year a day ſooner than it did the year before, and conſequently to be denoted by a different letter.

In biſſextile or leap-year, conſiſting of 366 days, there are fifty-two weeks, and two days over; ſo that if the leap-year begins on a *Sunday*, it will end on a *Monday*, and the next year begin on a Tueſday, and conſequently the Dominical Letter will be removed two places backwards; that is, if it be A at the beginning of the leap-year, it will be F the year following. By this means, every fourth year being biſſextile, the order of the Dominical Letters is interrupted, and the ſeries does not return to its firſt ſtate till after four times ſeven, or twenty-eight years. This period of time is the cycle of which we are now diſcourſing.

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The Dominical Letters are not the ſame in the *Gregorian*, as in the *Julian calendar*. By the reformation of the calendar under Pope Gregory, the order of the Dominical Letters was diſturbed; for the year 1582, which at the beginning had G for its Dominical Letter, came to have C in October, by the retrenchment of ten days after the 4th of that month. And thus the Dominical Letter of the ancient Julian calendar is four places before that of the Gregorian, the letter A in the former anſwering to D in the latter.

In order to find the year of the *ſolar cycle* for any year of Chriſt, proceed thus: Add 9 to the given year, and divide the ſum by 28; the remainder will ſhew the year of the cycle, and the quotient the number of cycles ſince the birth of Chriſt. If there be no remainder, the given year is the 28th or laſt year of the cycle. The reaſon of the addition of 9 is, becauſe the ninth year of the ſolar cycle was paſt, when the firſt year of the *Chriſtian* computation began.

The *cycle of indiction* is a circle or revolution of fifteen years, which when expired begins anew, and goes round again without intermiſſion. This cycle has no relation to the celeſtial motions, but was made uſe of by the Romans to make known the time of paying certain taxes, or for other civil purpoſes.

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purpoſes. The popes have dated their bulls by the *year* of the *indiction* ever ſince the time of Charlemagne.

The commencement of this cycle being fixed to the 3d year before Chriſt, add 3 to the given year, divide the ſum by 15, and the remainder will ſhew the year of indiction for any given year of Chriſt. If nothing remains, it is the 15th or laſt year of the cycle.

CHAP. LIX.

OF THE GOLDEN NUMBER, AND THE EPACTS.

THE *prime* or *golden number* is a revolution of nineteen years, and is that particular number which ſhews the year of the lunar cycle for any given year. So that to find the year of the lunar cycle is to find the golden number. Theſe numbers are called *golden*, becauſe, being of excellent uſe, they were expreſſed in ancient calendars by figures of gold.

In the firſt year of our Saviour's nativity, the golden number was 2; therefore add 1 to any given year of Chriſt, divide the ſum by 19, and the remainder

mainder is the golden number for that year. If nothing remains then 19 is the golden number. Thus, for inſtance, divide 1801 by 19, the remainder will be 15, the golden number for 1800.

This number is uſed in the calendar to ſhew the changes of the moon, and thereby to determine the time of Eaſter, and other moveable feaſts.

Epacts are, as the word implies, *added numbers*; that is, a number of days added to the lunar year, to make it equal to the ſolar year. The ſolar year has 365 days, and almoſt 6 hours; and the lunar year 354 days, and upwards of 8 hours. The *difference* is the *epact*. Now as this difference is not much ſhort of 11 days, it was made the epact of the firſt year of the lunar cycle.

To find the epact; multiply the golden number by 11, from that product ſubtract 11, divide the remainder by 30, and the remainder of the diviſion is the epact. For example; I would know the epact for the year 1800, of which the golden number is 15. This multiplied by 11 produces 165, from which 11 being ſubtracted, there remains 154; and this when divided by 30, has a remainder of 4, the epact required.

If after the operation nothing remains, then 30 is the epact.

CHAP. LX.

HOW TO FIND THE MOON'S AGE, AND THE DOMINICAL LETTER.

IN order to find the *moon's age*, add to the epact for March 0 in common years, and, in leap-years, for April 2, for May 3, for June 4, for July 5, for Auguſt 6, for September 8, for October 8, for November 10, for December 10, for January 0, for February 2.

Having added to the epact the number for the month, according to the foregoing rule, add thereto the day of the month for which the moon's age is required. The ſum of theſe three, if leſs than 30, is the moon's age; if more than 30, take 30 from it, and the remainder is the age of the moon.

The moon's age, ſubtracted from the day of the change, leaves the day of full moon. When nothing remains, that day of the month is the day of change.

How old is the moon on the 20th of May 1800? In order to reſolve this queſtion, add to the epact, already found to be 4, the number for May, which is 3, and 20, the day mentioned in the queſtion, the ſum will be 27 days, the anſwer required.

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To find the *Dominical Letter*, take the year and its fourth part, and add them together; divide the ſum by 7, and ſubtract what remains, after that diviſion, from the diviſor 7, the remainder gives the anſwer, accounting the letter A for 1, B for 2, C for 3, D for 4, E for 5, F for 6, and G for 7.

The *Dominical Letter* for 1800 is found thus: The year and its fourth 450 make 2250. After this ſum is divided by 7, there remains 3, which ſubtracted from 7 leaves 4 for a remainder, which is the Dominical Letter for the year 1800.

CHAP. LXI.

OF PERIODS.

A Period is a ſeries, or circle, of a certain number of years, uſed for meaſuring or computing time. Of theſe there are ſeveral, moſt of which take their names from the perſons who invented them.

Of the *Metonic* period, or *lunar cycle* of 19 years, it is needleſs to ſay any thing more. It has been ſufficiently explained.

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The *Calippic* period, ſo called from its inventor Calippus, is a ſeries of 76 years, which being elapſed, Calippus ſuppoſed that the new and full moons would return to the ſame day of the ſolar year. This was intended as an improvement of the *Metonic* period.

The *Victorian* period is a ſeries of 532 years, ariſing from the cycles of the ſun and moon multiplied into one another. It was invented by *Victorius*, a French clergyman, about the middle of the 5th century, and uſed by the weſtern churches for many ages, in computing the time of Eaſter, till the *Gregorian* reformation of the calendar.

The famous *Julian* period is a ſeries of 7980 years, ariſing from the multiplication of the cycles of the *ſun*, *moon*, and *indiction* into one another. This period is ſaid to have been invented by Joſeph Scaliger; and is called Julian, as being adapted to the Julian year. As it commences before the creation, and ſtill wants above 1500 years of being completed, it therefore comprehends all other cycles, periods, and epochas, and, in ſhort, the times of all actions and events, from the beginning of the world. Being thus a common receptacle, as it were, of all other epochas, it is of great uſe in reducing the years of any given epocha to thoſe of another; for which purpoſe it was invented.

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CHAP. LXII.

OF EPOCHAS OR ÆRAS.

AN Epocha, or *Æra*, is a certain fixed point of time, made famous by some remarkable event; from whence, as from a root, the ensuing years are numbered or computed.

As there is no astronomical consideration to render one epocha preferable to another, their constitution is purely arbitrary, and therefore various epochas have been used at different times, and among different nations.

The *Christian epocha* is the common epocha throughout Europe, commencing on the 25th of December, the day of our Saviour's nativity; or rather, according to the usual account, from his circumcision, on the 1st of January. In those countries, which observe the Julian calendar, it commences from the incarnation, on the 25th of March, nine months prior to the nativity.

The author of this epocha, or way of computing from Christ, was Dionysius Exiguus, a Roman abbot, about the beginning of the sixth century. Till his time the Christians computed their years, either from the persecution under Diocletian, or

from the building of Rome, or according to the cuſtom of the people among whom they lived.

The calculations, however, of our modern aſtronomers, ſeem plainly to prove that the *Dionyſian* account places the birth of our Saviour ſeveral years too late. But that is not material.

The *Epocha of the Creation*, according to the *Jewiſh* computation, is the year of the *Julian* period 953, anſwering to the year before Chriſt 3761, and commencing on the 7th of October. Hence, if we ſubtract 952 from any given year of the Julian period, the remainder is the correſponding year of the Jewiſh epocha of the creation.

The *Epocha of the Olympiads*, which was uſed principally by the Greeks, is very famous in ancient hiſtory. It took its riſe from the Olympic games, which were celebrated at the beginning of every fifth year, near Olympia, a city of Elis in Peloponneſus. An Olympiad, therefore, was a period of four years; and by theſe periods the Greeks reckoned their time, the year in which the games were celebrated being counted the firſt year of each Olympiad.

The beginning of the firſt *Olympiad* is referred to the year of the *Julian* period 3938, or 776 years before Chriſt.

The

The *Epocha of the building of Rome*, was the principal one among the Romans. This epocha is the year of the *Julian* period 3961, and answers to the year 752 before Christ, commencing on the 21st of April.

The *Diocleſian* Epocha, or Epocha of the *Martyrs*, commences in the year of Chriſt 284, and that of the Julian period 4997. It obtained its name from the great number of Chriſtians who ſuffered martyrdom in the reign of the emperor Diocleſian; and was generally uſed by Chriſtians till the year 532, when the way of computing from the birth of Chriſt began to prevail.

The *Epocha of the Hegira* is uſed by the *Turks*, *Arabs*, and others who profeſs the Mahometan faith. It commences on the 16th of July, in the year of Chriſt 622, and of the *Julian period* 5335. The word *Hegira* ſignifies *flight*; the event which gave occaſion to this epocha being Mahomet's flight from *Mecca*. The magiſtrates of that city, finding that his impoſture tended to *diſturb* the public peace, were determined to cut off the author of it, to prevent the farther ſpreading of the miſchief. But Mahomet, having timely notice of their deſign, fled by night to Medina, another city of Arabia, in the year of our Lord above-mentioned; and this is

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the principal æra from which the Mahometans compute their time.

CHAP. LXIII.

OF A CENTURY, A LUSTRUM, A JUBILEE, AND OTHER PARTICULARS.

A *Century*, or an *age*, is a courſe of an hundred years.

A *luſtrum* is a ſpace of five years, uſed by the Romans, at the end of which a review of the people was made, firſt by the kings, then by the conſuls, but after the year 310 by the cenſors, who were magiſtrates created for that very purpoſe. After the *cenſus* was finiſhed, an expiatory or purifying ſacrifice was made, conſiſting of a ſow, a ſheep, and a bull, which were carried round the whole aſſembly, and then ſlain; and thus the people were ſaid to be purified*. And becauſe this was done at the end of every fifth year, hence *luſtrum* is often put for the ſpace of five years; eſpecially by the poets.

* Luſtrari.

At

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At every *luſtrum*, the ſenate itſelf was reviewed by one of the cenſors; and if any one, by his behaviour, had rendered himſelf *unworthy* of that high rank, or had ſunk his fortune below that of a ſenator, his name was paſſed over by the cenſor in reading the roll of ſenators; and thus he was held to be excluded from the ſenate *.

A *jubilee* is a periodical feſtivity, or public rejoicing, on account of ſome remarkable event, or in memory of ſome eminent perſon.

According to the æra by which we reckon, we date the time of every memorable tranſaction, as,

A. M. *Anno Mundi*, in the year of the world.

A. D. *Anno Domini*, in the year of our Lord.

A. C. *Ante Chriſtum*, before Chriſt; and ſometimes B. C. is put for before Chriſt.

A. Æ. C. *Anno Æræ Chriſtianæ*, in the year of the Chriſtian æra.

A. U. C. *Anno Urbis conditæ*, in the year of the building of the city of Rome; or A. ab U. C. in the year from the building of the city; and ſo of the other epochas.

* E ſenatu motus.

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CHAP. LXIV.

A CHRONOLOGICAL ACCOUNT OF MEMORABLE EVENTS FROM THE CREATION TO THE DELUGE.

ABOUT *four thouſand* and *four* years before the Chriſtian æra, God created the world, and our firſt parents Adam and Eve, placing them in the *Garden* of *Eden*, or the *terreſtrial paradiſe*, from whence they were ſoon expelled for eating the forbidden fruit.

In the *ſecond* year of the world, happened the birth of Cain, the firſt who was born of a woman. He killed his brother Abel A. M. 129.

In the year of the world 987, Enoch, for his piety, was tranſlated into heaven, being 365 years old.

In the year 1656, Methuſelah, the longeſt liver of all men, died, aged 969 years.

The *ſame year* Noah, his wife and three ſons, Shem, Ham, and Japhet, with their wives, entered the ark, which had been built by God's command. The flood began on the ſeventeenth day of the ſecond month, anſwering to our October, and continued a whole year. Thus the *old world.* was deſtroyed by a deluge.

CHAP.

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CHAP. LXV.

REMARKABLE EVENTS FROM THE FLOOD TO THE BUILDING OF SOLOMON'S TEMPLE, A.M. THREE THOUSAND.

MUCH about the year of the world 1757, the tower of Babel was built by Noah's poſterity, upon which God miraculouſly confounded their language, and thus diſperſed them into different nations.

Soon after this event, Noah is, with great probability, ſuppoſed to have departed from his rebellious offspring, and to have led a colony of ſome of the more tractable into the Eaſt. There, either he, or one of his ſucceſſors, in the opinion of the moſt celebrated hiſtorians, founded the *ancient Chineſe monarchy*.

In the year of the world 1770, the celeſtial obſervations were begun at Babylon, the city which firſt gave birth to learning and the ſciences. A few years after, Miſraim, the ſon of Ham, founded the kingdom of Egypt, which laſted 1663 years, down to its conqueſt by Cambyſes, in the year before Chriſt 525.

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In the year 1945, Ninus, the ſon of Belus, founded the kingdom of Aſſyria, which laſted above 1000 years; and out of its ruins were formed the Aſſyrians of Babylon, thoſe of Nineveh, and the kingdom of the Medes.

Prometheus firſt ſtruck fire from flints, A. M. 2289.

In the year of the world 2433, Moſes was born in Egypt, and *adopted* by Pharaoh's daughter, who educated him in all the learning of the Egyptians Some years after, Cecrops brought a colony from Egypt into Attica, and *began* the kingdom of Athens, in Greece.

Scamander came from Crete into Phrygia, and began the kingdom of Troy, A. M. 2458.

In 2511, Cadmus carried the Phœnician letters into Greece, and built the citadel of Thebes. Two years after this, Moſes performed a number of miracles in Egypt, and departed from that kingdom, together with 600,000 Iſraelites, beſides children; which completed the 430 years of ſojourning. They miraculouſly paſſed through the Red Sea, and came to the deſart of Sinai, where Moſes received from God, and delivered to the people, the ten commandments, and the other laws, and ſet up the tabernacle, and in it the ark of the covenant.

In

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In the year of the world 2519, the first ship that appeared in Greece was brought from Egypt by Danaus, who arrived at Rhodes, and brought with him his fifty daughters.

The first Olympic games were celebrated at Olympia, in Greece, A. M. 2551.

The year following, the five first books of Moses, (called the Pentateuch) were written in the land of Moab, where he died soon after, aged 120.

In 2806, Helen, wife of Menelaus, king of Sparta, was carried away by Paris, which, in 2811, gave rise to the Trojan war, and siege of Troy by the Greeks, which continued ten years, when that city was taken and burnt.

In the year of the world 3000, the magnificent temple of Solomon, at Jerusalem, was finished.

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CHAP. LXVI.

MEMORABLE EVENTS FROM THE BUILDING OF THE TEMPLE, TO THE BIRTH OF CHRIST.

A.M. 3097 HOMER, the first profane writer and Greek poet, flourished. Hesiod, another famous Grecian poet, is supposed to have been nearly cotemporary with Homer.

3110 Money was first made of gold and silver at Argos.

3135 The city of Carthage, in Africa, was founded by queen Dido.

3251 The city of Rome, in Italy, was built by Romulus, first king of the Romans.

3284 The first eclipse of the moon on record.

3404 Thales of Miletus travelled into Egypt, consulted the priests of Memphis, acquired the knowledge of geometry, astronomy and philosophy; returned to Greece, calculated eclipses, gave general notions of the universe, and maintained that one supreme intelligence regulates all its motions.

Maps, globes, and the signs of the Zodiac, were, about this time, invented by Anaxamander, the scholar of Thales.

Sappho,

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A. M.

Sappho, the Greek lyric poeteſs, flouriſhed at the ſame period.

3442 The firſt comedy at Athens, was acted upon a moveable ſcaffold.

3470 The firſt tragedy was acted at Athens, on a waggon, by Theſpis.

3507 Pythagoras, the founder of the Pythagorean philoſophy in Greece, flouriſhed; with whom Anacreon, the Greek lyric poet, was nearly contemporary.

3518 Æſchylus, the Greek tragic poet, firſt gained the prize of tragedy.

3569 Pindar, the Greek lyric poet, lived; and not many years after, flouriſhed Herodotus, the firſt writer of profane hiſtory.

3604 Socrates, the founder of moral philoſophy among the Greeks, who believed the immortality of the ſoul, a future ſtate of rewards and puniſhments, and other ſublime doctrines, was put to death by the Athenians. Of this, however, they ſoon repented, and erected to his memory a ſtatue of braſs.

Confucius, the Chineſe philoſopher, lived at the ſame time; and Thucydides, the Greek hiſtorian, about ten years after.

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A. M.

3645 Xenophon, the Greek philoſopher and hiſtorian, flouriſhed; and Plato, the diſciple of Socrates, was almoſt contemporary with him.

3673 Alexander the Great, king of Macedon, conquered Darius, king of Perſia, and other nations of Aſia. In 3681, he died at Babylon, and his empire was divided by his generals into four kingdoms.

3681 Demoſthenes, the Athenian orator, poiſoned himſelf.

3720 Ptolemy Philadelphus, king of Egypt, employed ſeventy-two interpreters to tranſlate the Old Teſtament into the Greek language, which is called the Septuagint.

3727 Theocritus, the firſt Greek paſtoral poet; Euclid, of Alexandria, in Egypt, the mathematician; and Epicurus, founder of the Epicurean philoſophy in Greece, rendered themſelves famous by their writings.

3796 Archimedes, the Greek geometrician, flouriſhed.

3845 Terence of Carthage, the Latin comic poet, acquired great renown; as did alſo Diogenes, of Babylon, the ſtoic philoſopher.

3858 Carthage, the rival of Rome, was levelled with the ground.

3880 Poly-

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A. M.

3880 Polybius, of Greece, the Greek and Roman hiſtorian, publiſhed his much eſteemed productions.

3952 Julius Cæſar made his firſt expedition into Britain; and five years after the battle of Pharſalia between Cæſar and Pompey was fought, in which the latter was defeated.

3953 Lucretius, the Roman poet, flouriſhed.

3957 The Alexandrian library, conſiſting of 400,000 valuable books, was burnt by accident.

3959 The war of Africa happened, in which Cato *killed* himſelf. The ſolar year was alſo introduced by Cæſar.

3960 Cæſar, the greateſt of the Roman conquerors, after having fought *fifty* pitched battles, and ſlain more than a million of men, and overturned the liberties of his country, was killed in the ſenate houſe.

Diodorus Siculus, of Greece, the univerſal hiſtorian, and Vitruvius, the Roman architect, lived at the ſame time.

3960 Cicero, the Roman orator and philoſopher, was put to death. Cornelius Nepos, the Roman biographer, publiſhed his lives of eminent men.

3970 Salluſt, the Roman hiſtorian, publiſhed his elegant productions. His hiſtory of Catiline's conſpiracy is admirably well written.

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A.M.

3973 The battle of Actium was fought, in which Mark Antony and Cleopatra were totally defeated by Octavius, nephew to Julius Cæsar.

3974 Alexandria, in Egypt, was taken by Octavius; upon which Antony and Cleopatra put themselves to death, and Egypt was reduced to a Roman province.

Dionysius, of Halicarnassus, wrote his Roman history.

3977 Octavius, by a decree of the senate, obtained the title of *Augustus Cæsar*, and an absolute *exemption* from the laws, and was, properly speaking, the *first Roman emperor*. At this time, Rome was *fifty* miles in circumference, and contained 463,000 men fit to bear arms.

4004 The temple of Janus was shut by Augustus, as an emblem of universal peace. Virgil, the famous epic and pastoral poet, Horace, the celebrated lyric and satiric poet, flourished under Augustus, and were patronized by him.

Jesus Christ, the Saviour of mankind, was born, at *Bethlehem*, on the 25th of December.

CHAP.

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CHAP. LXVII.

REMARKABLE EVENTS DURING THE FOUR FIRST CENTURIES OF THE CHRISTIAN ÆRA.

A. D.
1 HEROD maſſacres all the infants of Bethlehem, thinking that certainly *Chriſt* would not eſcape.

12 Our Saviour diſputes with the Doctors in the Temple.

17 Livy, the elegant hiſtorian, wrote his Roman hiſtory. Ovid, the ingenious elegiac poet; Celſus, the philoſopher and phyſician; and Strabo, the Greek geographer, flouriſhed about the ſame time.

33 Chriſt was crucified on Friday, April 3, at three o'clock, P. M. His reſurrection took place on Sunday, April 5; and his aſcenſion on Thurſday, May 14.

Phædrus, the Roman fabuliſt, lived at this memorable period.

39 Pontius Pilate killed himſelf.

40 The name of Chriſtians was firſt given at Antioch to the followers of Chriſt.

49 Lond-

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A. D.

49 London was founded by the Romans; and in 368 they ſurrounded it with a *wall*, ſome parts of which are ſtill obſervable.

63 Chriſtianity is ſuppoſed to have been introduced into Britain by St. Paul, or ſome of his diſciples.

64 Quintus Curtius, a Roman, wrote the hiſtory of Alexander the Great.

Seneca, of Spain, the philoſopher and tragic poet, was put to death.

Lucan, the Roman epic poet, rendered himſelf famous by his *Pharſalia*.

70 Whilſt the factious Jews were deſtroying one another with mutual fury, Titus, the Roman general, took Jeruſalem, which was razed to the ground, and the plough made to paſs over it.

79 Pliny, the elder, the Roman natural hiſtorian, flouriſhed.

85 Julius Agricola, governor of South-Britain, to protect the civilized Britons from the incurſions of the Caledonians, built a line of forts between the rivers Forth and Clyde; defeated the Caledonians under Galgacus on the Grampian hills; and firſt ſailed round Britain, which he diſcovered to be an iſland.

93 Joſephus,

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A. D.

93 Joſephus, the Jewiſh hiſtorian, Epictetus, the Greek ſtoic philoſopher, and Quintilian, the Roman orator and advocate, were the ornaments of the age in which they lived.

99 Tacitus and Lucius Florus, the Roman hiſtorians, and Martial, of Spain, the epigrammatic poet, flouriſhed.

117 Pliny, the younger, publiſhed his hiſtorical letters; Suetonius his Roman hiſtory; and Plutarch, the Grecian biographer, his lives.

121 The Caledonians recovered from the Romans all the ſouthern parts of Scotland; upon which the emperor Adrian built a wall between Newcaſtle and Carliſle. But this alſo proving ineffectual, Pollius Urbicus, the Roman general, about the year 144, repaired Agricola's fort, which he joined by a wall four yards thick.

128 Juvenal wrote his ſatires, and Juſtin his univerſal hiſtory, ſome time after.

180 Lucian, the ingenious Roman philologer, publiſhed his dialogues.

193 Galen, the Greek philoſopher and phyſician, flouriſhed.

273 Longinus, the Greek orator, and author of the celebrated treatiſe on the *ſublime*, was put to death by Aurelian.

274 Silk

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A. D.

274 Silk was firſt brought from India. The manufactory of it was firſt introduced into Europe by ſome monks, in 551; and it was firſt worn by the clergy in England, in 1534.

306 Conſtantine the Great began his reign.

320 Arius, a prieſt of Alexandria, founded the ſect of the Arians.

325 The firſt general council was held at Nice, when 318 fathers attended, againſt Arius, when the *famous Nicene creed* was compoſed.

328 Conſtantine removed the ſeat of empire from Rome to Byzantium, which was afterwards called Conſtantinople. Not long after he ordered all the *heathen temples* to be deſtroyed.

342 Euſebius, the eccleſiaſtical hiſtorian and chronologer, flouriſhed.

363 The Roman emperor Julian, ſurnamed the Apoſtate, endeavoured in vain to rebuild the temple of Jeruſalem.

364 The Roman empire was divided into the eaſtern, of which Conſtantinople was the capital, and the weſtern, of which Rome continued to be the capital, each being under the government of different emperors.

400 Bells

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A.D.

400 Bells were invented by Paulinus, of Campagnia.

CHAP. LXVIII.

MEMORABLE EVENTS FROM THE BEGINNING OF THE FIFTH TO THE END OF THE TENTH CENTURY.

404 THE kingdom of Caledonia, or Scotland, revived under Fergus.

406 The Vandals, Alans, and Suevi, ſpread into France and Spain, by a conceſſion of Honorius, emperor of the Weſt.

426 The Romans, reduced to extremities at home, withdrew their troops from Britain, and never returned. Before their departure, they adviſed the Britons to arm in their own defence, and truſt to their own valour.

428 Eutropius publiſhed his abridgment of the Roman hiſtory.

476 The weſtern empire was finiſhed; and out of its ruins ſeveral new ſtates aroſe in Italy and other parts, conſiſting of Goths, Vandals,

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A. D.

dals, Huns, and other Barbarians, under whom literature was extinguiſhed, and the works of the learned were deſtroyed.

513 Conſtantinople was beſieged by Vitalianus, whoſe *fleet* was burnt by a *ſpeculum* of braſs.

581 Latin ceaſed to be ſpoken in Italy.

622 Mahomet, a falſe prophet, fled from Mecca to Medina, in Arabia, in the 44th year of his age, and 10th of his miniſtry, when he laid the foundation of the Saracen empire, and from whom the Mahometan princes to this day claim their deſcent. His followers compute their time from this æra, which in Arabic is called *Hegira*, that is, the *Flight*.

653 Jeruſalem was taken by the Saracens, or followers of Mahomet.

653 The Saracens extend their conqueſts on every ſide, and retaliate the barbarities of the Goths and Vandals upon their poſterity.

664 Glaſs was invented in England by Benalt, a monk.

685 The Britons, after a brave ſtruggle of near 150 years, were totally expelled by the Saxons, and driven into Wales and Cornwall.

735 Bede,

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A. D.

735 Bede, a prieſt of Northumberland, publiſhed the hiſtory of the Saxons, and Scots. Being almoſt the only learned man of his time, he was honoured with the title of the *venerable Bede.*

800 Charlemagne, king of France, began the empire of Germany, afterwards called the weſtern empire. He gave the preſent names to the winds and months, and endeavoured to reſtore learning in Europe; but mankind were not yet diſpoſed for it, being ſolely engroſſed in military enterprizes.

838 The Scots and Picts had a deciſive battle, in which the former prevailed, and both kingdoms were united by Kennet, which began the ſecond period of the Scottiſh hiſtory.

896 Alfred the Great, after ſubduing the Daniſh invaders, againſt whom he fought 56 battles by ſea and land, compoſed his body of laws, divided England into counties and hundreds, erected county-courts, and founded the univerſity of *Oxford.*

901 King Alfred publiſhed his hiſtory, his philoſophy, and his poetry.

915 The univerſity of Cambridge was founded.

979 Coronation oaths are ſaid to have been firſt uſed in England.

991 The

A. D.

991 The figures in arithmetic were brought into Europe by the Saracens from Arabia. Letters of the alphabet were formerly uſed.

1000 Paper made of cotton rags was in uſe; that of linen rags in 1170. The manufacture of it was introduced into England at Dartford, in 1588.

CHAP. LXIX.

REMARKABLE EVENTS OF THE ELEVENTH, TWELFTH, AND THIRTEENTH CENTURIES.

1015 CHILDREN were forbidden, by law, to be ſold by their parents, in England.

1017 Canute, king of Denmark, got poſſeſſion of England.

1066 The battle of Haſtings was fought between Harold, and William, duke of Normandy, in which Harold was conquered and ſlain; after which William became king of England.

1070 William introduced the feudal laws into England.

1071 Mu-

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A. D.

1071 Muſical notes were invented.

1075 Henry IV. emperor of Germany, and the pope, quarrel about the nomination of the German biſhops. Henry, in penance, walked barefoot to the pope, towards the end of January.

1076 Juſtices of the peace were firſt appointed in England.

1080 The *Tower* of London was built by William, to curb his Engliſh ſubjects, numbers of whom *fled* to Scotland, where they introduced the Saxon or Engliſh language, were *protected* by *Malcolm*, and had lands given them.

1096 The firſt cruſade to the Holy Land began, under ſeveral Chriſtian princes, to drive the infidels from Jeruſalem.

1118 The order of the Knights Templars was inſtituted, to defend the ſepulchres at Jeruſalem, and to protect Chriſtian ſtrangers.

1163 London bridge, conſiſting of 19 ſmall arches, was firſt built of ſtone.

1172 Henry II. king of England, and firſt of the Plantagenets, took poſſeſſion of Ireland; which from that period has been governed by an Engliſh *viceroy*, or *lord lieutenant*.

1180 Glaſs

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A. D.

1180 Glaſs windows began to be uſed in private houſes in England.

1186 The great conjunction of the ſun and moon and all the planets in Libra, happened in September.

1192 The battle of Aſcalon was fought, in Judea, in which Richard, king of England, defeated Saladine's army, conſiſting of 300,000 combatants.

1194 *Dieu et mon Droit* was firſt uſed as a motto by Richard, on a victory over the French.

1200 Chimnies were not known in England.

1202 *Surnames* began to be uſed. The *nobility* were the firſt who aſſumed them.

1208 London was incorporated, when the inhabitants obtained their firſt charter for electing their Lord Mayor, and other magiſtrates, from king John.

1215 *Magna Charta* was ſigned by king John and the Barons of England. In the ſame year the *Court* of *Common Pleas* was eſtabliſhed.

1227 The Tartars, a new race of heroes, under Gingis-Kan, emerged from the northern parts of Aſia, over-ran all the Saracen empire; and, in imitation of former conquerors, carried death and deſolation wherever they marched.

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A. D.

1233 The inquiſition, begun in 1204, was truſted to the Dominicans.

1234 The *houſes* of *London*, and other cities in England, France, and Germany, were ſtill *thatched* with ſtraw.

1259 Matthew Paris, a monk of St. Alban's, publiſhed his hiſtory of England.

1264 According to ſome writers, the commons of England were ſummoned to parliament for the firſt time.

1273 The empire of the preſent Auſtrian family began in Germany.

1282 Lewellyn, prince of Wales, was defeated and killed by Edward I. who *united that principality* to England.

1284 Edward II. born at Carnarvon, was the firſt prince of Wales.

1292 Roger Bacon, of Somerſetſhire, the natural philoſopher, flouriſhed.

1298 Knives with ſilver handles, ſilver ſpoons, and cups, were a great luxury.

1299 Tallow candles were ſo great a luxury, that ſplinters of wood were uſed for lights.

1300 Wine was ſold by the apothecaries as a cordial.

CHAP.

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CHAP. LXX.

SINGULAR OCCURRENCES OF THE FOURTEENTH AND FIFTEENTH CENTURIES.

A.D. 1302 THE mariner's compaſs was invented, or improved, by Givia, of Naples.

1307 The Swiſs cantons began.

1308 John Fordun, a prieſt of Merns-ſhire, publiſhed the hiſtory of Scotland.

1310 Lincoln's Inn ſociety was eſtabliſhed.

1314 The battle of Bannockburn between Edward II. and Robert Bruce was fought, which eſtabliſhed the latter on the throne of Scotland.

1320 Gold was firſt coined in Chriſtendom. It was coined in England about the year 1344.

1340 Gunpowder and guns were firſt invented by Swartz, a monk of Cologn. In 1346, Edward III. had four pieces of cannon, which contributed to gain him the battle of Creſſy. The ſame year, bombs and mortars were invented.

1341 Oil painting was firſt made uſe of by John Vaneck.

1342 Herald's college was inſtituted in England.

1344 The

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A. D.

1344 The firſt creation to titles by patent was uſed by Edward III.

1349 The order of the Garter was inſtituted in England by Edward III. and altered 1557. It conſiſts of 26 knights.

1537 Coals were firſt brought to England.

1362 The law pleadings in England were changed from French to Engliſh, as a favour of Edward III. to his people.

1363 John Wickliffe, an Engliſhman, began to oppoſe the errors of the church of Rome, with great acuteneſs and ſpirit. His followers were called Lollards.

1385 A company of linen-weavers, from the Netherlands, were eſtabliſhed in London.

1386 Windſor caſtle was built by Edward III.

1391 Cards were invented in France, for the king's amuſement.

1399 Weſtminſter Abbey and Weſtminſter Hall, were rebuilt and enlarged.

In the ſame year, the order of the Bath was inſtituted, at the coronation of Henry IV. and renewed in 1725. It conſiſts of 38 knights.

1400 Died the famous Geoffrey Chaucer, of London, the father of Engliſh poetry.

1402 Died John Gower, of Wales, the poet.

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1410 Guildhall, London, was built.

1411 The univerſity of St. Andrew's, in Scotland, was founded.

1415 The battle of Agincourt was gained over the French, by Henry V. of England.

1428 Laurantius, of Harleim, invented the *art of printing*, which he practiſed with ſeparate *wooden* types. Guttenburgh afterwards invented *cut metal* types. But the art was carried to perfection by *Peter Schoeffer*, who invented the mode of *caſting* the types in *matrices*. *Frederic Corſellis* began to print at Oxford, in 1468, with *wooden types*; but it was *William Caxton* who introduced into England the art of printing with fuſile types in 1474.

1446 The ſea broke in at Dort, in Holland, and drowned 100,000 people.

1453 Conſtantinople was taken by the Turks, which put an end to the *eaſtern empire*, 1123 years from its dedication by *Conſtantine* the *Great*, and 2206 years from the foundation of Rome.

1454 The univerſity of Glaſgow, in Scotland, was founded.

1460 Engraving and etching in copper was invented.

1477 The univerſity of Aberdeen, in Scotland, was founded.

1483 Richard

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A. D.

1483 Richard III. king of England, and laſt of the Plantagenets, was defeated and killed at the battle of Boſworth, by Henry (Tudor) VII. which put an end to the civil wars between the *houſes* of *York* and *Lancaſter*, after a conteſt of 30 years, and the loſs of 100,000 men.

1486 Henry eſtabliſhed fifty yeomen of the guards, the firſt ſtanding army.

1491 The Moors, hitherto a formidable enemy to the native Spaniards, were entirely ſubdued by Ferdinand, and became ſubjects to that prince on certain conditions, which were ill obſerved by the Spaniards, whoſe clergy employed the powers of the Inquiſition, with all its tortures; and, in 1609, near one million of the Moors were driven from Spain to the oppoſite coaſt of Africa, from whence they originally came.

1492 America was firſt diſcovered by Columbus, a Genoeſe, in the ſervice of Spain.

1494 Algebra was firſt known in Europe.

1497 South America was diſcovered by Americus Veſpuſius, from whom it has its name.

1499 North America was diſcovered by Cabot, for Henry VII.

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1500 Maximilian divided the empire of Germany into six circles, and added four more in 1512.

CHAP. LXXI.

MEMORABLE EVENTS OF THE SIXTEENTH CENTURY.

1505 SHILLINGS were first coined in England.

1509 *Gardening* was first introduced into England from the *Netherlands*, from whence *vegetables* were hitherto imported.

1513 The battle of Flowden was fought, in which James IV. of Scotland was killed, with the flower of his nobility.

1517 Martin Luther began the reformation.

1520 Henry VIII. for his writings in favour of popery, received the title of Defender of the Faith from the Pope.

1529 The name of *Protestant* took its rise from the *Protestants protesting against the church of Rome*, at the diet of Spires in Germany.

1534 The reformation took place in England, under Henry VIII.

1535 Died

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1535 Died Sir Thomas Moore, of London, who publiſhed hiſtory, politics, and divinity.

1537 Monaſteries and convents were diſſolved by Henry VIII.

1539 The firſt Engliſh edition of the bible was authoriſed. The preſent tranſlation was finiſhed in 1611.

1540 Cannon began to be uſed in ſhips.

1543 Silk ſtockings were firſt worn by the French king. They were firſt uſed in England by queen Elizabeth, in the year 1651. The ſteel frame for weaving was invented by the Rev. Mr. Lee, of St. John's college, Cambridge, in 1589.

This year, likewiſe, *pins* were firſt uſed in England; for before the invention of pins, the ladies uſed ſkewers.

1544 Good lands were let in England at one ſhilling per acre.

1545 The famous council of Trent began, and continued 18 years.

1552 Died John Leland, of London, author of lives and antiquities.

1588 Queen Elizabeth began her reign.

1560 The reformation in Scotland was completed by John Knox.

1563 Knives were firſt made in England.

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1568 Died Roger Aſcham, of Yorkſhire, author of philology, and polite literature.

1569 The Royal Exchange was firſt built.

1572 There was a great maſſacre of Proteſtants, or Hugonots, at Paris.

During the ſame year, the Rev. John Knox, the Scotch reformer, died. He wrote a hiſtory of the church of Scotland.

1579 The Dutch ſhook off the Spaniſh yoke, and the republic of Holland began.

The Engliſh Eaſt-India company was incorporated. It was eſtabliſhed in 1600.

1580 Sir Francis Drake returned from his voyage round the world, being the firſt Engliſh circumnavigator.

Parochial regiſters were firſt appointed in England.

1582 Died George Buchanan, of Dumbartonſhire, the celebrated author of the hiſtory of Scotland, the Pſalms of David, and other poetical, as well as political, productions.

Pope Gregory introduced the New Style into Italy; the 5th of October being reckoned the 15th.

1583 Tobacco was firſt brought from Virginia into England.

1587 Mary

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1587 Mary queen of Scots was beheaded by order of Elizabeth, after 18 years impriſonment.

1588 The Spaniſh Armada was deſtroyed by Drake, and other Engliſh admirals.

Henry IV. paſſed the edict of Nantz, tolerating the Proteſtants.

1589 Coaches were firſt introduced into England. The hackney act took place in 1693. The number of hackney-coaches was increaſed to 1000, in 1770.

1591 Trinity College, Dublin, was founded.

1597 *Watches* were firſt brought into England from *Germany*.

1598 Died Edmund Spenſer, of London, author of the Fairy Queen, and other poems.

CHAP. LXXII.

REMARKABLE EVENTS OF THE SEVENTEENTH CENTURY.

1602 DECIMAL Arithmetic was invented at Bruges.

1603 Queen Elizabeth, the *laſt* of the Tudors, died, and nominated James VI. of Scotland, the

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A. D.

firſt of the Stuarts, as her ſucceſſor; which *united* both kingdoms under the *name* of *Great Britain.*

1605 The Gunpowder-plot was diſcovered at Weſtminſter; being a project of the Roman catholics to blow up the king and both houſes of parliament.

1608 Galileo, of Florence, firſt diſcovered the Satellites about the planet Saturn, by the *telleſcope,* then juſt *invented* in Holland.

1610 Henry IV. was murdered at Paris by Ravilliac, a prieſt.

1613 Napier, of Marcheſton, in Scotland, invented the logarithms.

1614 Sir Hugh Middleton brought the New River to London from Ware.

1616 Died William Shakſpeare, of Stratford, who wrote 42 tragedies and comedies.

1619 Dr. William Harvey, an Engliſhman, diſcovered the doctrine of the circulation of the blood.

1623 Died William Camden, of London, author of hiſtory and antiquities.

1625 King James died, and was ſucceeded by his ſon, Charles I.

1626 Died Lord Chancellor Bacon, of London, who

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who wrote on natural philoſophy and literature in general.

1634 Died Lord Chief Juſtice Coke, of Norfolk, author of the *Laws of England.*

1636 Regular poſts were eſtabliſhed from London to Scotland, Ireland, &c.

1638 Died Ben Jonſon, of London, the author of 53 dramatic pieces.

1640 The maſſacre in Ireland happened, when 40,000 Engliſh Proteſtants were killed.

1641 Died Sir Henry Spelman, of Norfolk, who publiſhed laws and antiquities.

1642 King Charles impeached five members, who had oppoſed his arbitrary meaſures, which began the civil war in England.

1643 The exciſe on beer and ale, &c. was firſt impoſed by parliament.

1646 Epiſcopacy was aboliſhed in England.

1649 Charles I. was beheaded at Whitehall, January 30, aged 49.

1654 Cromwell aſſumed the protectorſhip.

1658 Cromwell died, and was ſucceeded in the protectorſhip by his ſon Richard.

1660 King Charles II. was reſtored by Monk, commander of the army, after an exile of 12 years in France and Holland.

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1660 Epiſcopacy was reſtored in England and Scotland.

1662 The Royal Society was eſtabliſhed in London, by Charles II.

1665 The plague raged in London, and carried off 68,000 perſons.

1666 The great fire of London began, on the 2d of September, and continued three days, in which were deſtroyed 13,000 houſes, and 400 ſtreets.

Tea was firſt uſed in England.

1667 Died Abraham Cowley, of London, author of miſcellaneous poetry.

1672 Halfpence and farthings were firſt coined in England.

Lewis XIV. over-ran great part of Holland, when the Dutch opened their ſluices, being determined to *drown* their country, and retire to their *ſettlements* in the Eaſt Indies.

1674 Died John Milton, of London, author of Paradiſe Loſt, Regained, and various other pieces in verſe and proſe.

The ſame year, died Hyde, earl of Clarendon, a native of Wiltſhire, who publiſhed a Hiſtory of the Civil Wars in England.

1675 Died James Gregory, of Aberdeen, who wrote on mathematics, geometry, and optics.

1677 Died

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1677 Died the Rev. Dr. Iſaac Barrow, of London, a celebrated divine, natural philoſopher, and mathematician.

1680 A great comet appeared, and from its nearneſs to our earth alarmed the inhabitants. It continued viſible from November the 3d to March the 9th.

William Penn, a Quaker, received a charter for planting Pennſylvania.

The ſame year, died Samuel Butler, of Worceſterſhire, author of Hudibras, a burleſque poem.

1685 Died Charles II. aged 55, and was ſucceeded by his brother James II.

The duke of Monmouth, natural ſon to Charles II. raiſed a rebellion, but was defeated at the battle of Sedgemoor, and beheaded.

Thomas Otway, of London, died this year. He was the author of 10 tragedies and comedies, and other poems.

1687 Died Edmund Waller, of Bucks, author of poems, ſpeeches, and letters.

1688 The Revolution in Great Britain began, on the 5th of November. King James abdicated, and retired to France, in the month of December.

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1688 Dr. Ralph Cudworth, of Somerſetſhire, died. He was the author of the *Intellectual Syſtem*.

1689 King William and queen Mary, daughter and ſon-in-law to James, were proclaimed on the 16th of February.

The land-tax paſſed in England, as alſo the toleration act.

Dr. Thomas Sydenham, of Dorſetſhire, author of the Hiſtory of Phyſic, died this year.

1690 Died Nathaniel Lee, of London, author of 11 tragedies; as alſo Robert Barclay, of Aberdeenſhire, author of the Apology for the Quakers.

1691 Died the Hon. Robert Boyle, who wrote on natural and experimental philoſophy, as well as theology; as alſo Sir George Mackenzie, of Dundee, who publiſhed the antiquities and laws of Scotland.

1693 Bayonets at the end of loaded muſkets were firſt uſed by the French againſt the confederates, at the battle of Turin.

The duchy of Hanover was made the ninth electorate.

The bank of England was eſtabliſhed by king William.

The firſt public lottery was drawn this year.

1694 Died

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1694 Died John Tillotſon, archbiſhop of Canterbury, a native of Halifax, and author of 254 ſermons.

1697 Sir William Temple, of London, died. He wrote on politics, and polite literature.

1699 The Scots ſettled a colony at the iſthmus of Darien, in America, and called it Caledonia.

1700 Charles XII. of Sweden began his reign.

CHAP. LXXIII.

MEMORABLE EVENTS OF THE EIGHTEENTH CENTURY.

1701 THE ſociety for the propagation of the goſpel in foreign parts was erected.

John Dryden, of Northamptonſhire, died this year. He was the author of 27 tragedies and comedies, a tranſlation of Virgil, and ſatiric poems.

1702 King William died, aged 50, and was ſucceeded by queen Anne, daughter to James II. who, with the Emperor and States General,

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neral, renewed the war againſt France and Spain.

1704 Gibraltar was taken from the Spaniards, by Admiral Rooke.

The battle of Blenheim was won by the duke of Marlborough and the allies, againſt the French.

The court of Exchequer was inſtituted in England.

John Locke, of Somerſetſhire, died this year. He wrote on government, education, moral philoſophy, and theology.

1705 Died John Ray, of Eſſex, who wrote on botany, natural philoſophy, and divinity.

1706 The treaty of Union betwixt England and Scotland, was ſigned on the 22d of July.

1707 The firſt Britiſh parliament was aſſembled.

George Farquhar, of Londonderry, author of eight comedies, died this year.

1708 Sardinia was erected into a kingdom, and given to the duke of Savoy.

1709 Peter the Great, czar of Muſcovy, defeated Charles XII. at Pultowa, who fled to Turkey.

1710 The cathedral church of St. Paul, London, was rebuilt by Sir Chriſtopher Wren, in 37 years,

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years, at the expence of *one million* of pounds, by a duty on coals.

1713 The peace of Utrecht was concluded, whereby Newfoundland, Nova Scotia, New Britain, and Hudſon's Bay, in North America, were yielded to Great Britain. Gibraltar and Minorca, in Europe, were alſo confirmed to the ſaid crown by this treaty.

Ant. Aſh. Cooper, earl of Shafteſbury, the celebrated author of the *Characteriſtics*, died this year.

1714 Queen Anne died, at the age of 50, and was ſucceeded by George I.

Gilbert Burnet, a native of Scotland, biſhop of Saliſbury, died the ſame year. He wrote the hiſtory of his own times, and of the reformation, an expoſition of the thirty-nine articles of the church of England, and ſermons.

Intereſt was reduced to five per cent.

1715 The rebellion in Scotland began in September, under the earl of Mar, in favour of the Pretender. The action of Sheriff-muir, and the ſurrender of Preſton, both happened in November, when the rebels diſperſed.

Lewis XIV. died, and was ſucceeded by his great-grandſon, Lewis XV.

1715 An

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1715 An act paſſed for ſeptennial parliaments.

1718 Died Nicholas Rowe, of Devonſhire, author of ſeven tragedies, and a tranſlation of Lucan's Pharſalia.

The Northern Lights firſt appeared this year.

1719 Lombe's ſilk-throwing machine, containing 26586 wheels, was erected at Derby. It took up one-eighth of a mile. One water-wheel moved the reſt; and in 24 hours it produced 318 millions, 504 thouſand, 960 yards of ſilk thread.

The South-Sea ſcheme in England began on the 7th of April, was at its height at the end of June, and quite ſunk about the end of September.

Joſeph Addiſon, of Wiltſhire, the elegant author of the Spectator, Guardian, poems, and political pieces, died this year.

About the ſame time died the Rev. John Flamſtead, of Devonſhire, and Dr. John Keill, of Edinburgh, both celebrated for their ſkill in aſtronomy and mathematics.

1721 Died Matthew Prior, of London, who wrote poems, and political pieces.

1724 William Wollaſton, of Staffordſhire, died. He was the author of the Religion of Nature delineated, a very valuable work.

1727 King

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1727 King George I. died, in the 68th year of his age, and was ſucceeded by his only ſon George II.

The immortal Sir Iſaac Newton, of Lincolnſhire, died the ſame year. His philoſophical diſcoveries are well known to the learned.

Inoculation was firſt tried on criminals with ſucceſs.

Ruſſia, formerly a dukedom, was now eſtabliſhed as an empire.

1729 Died the Rev. Dr. Samuel Clarke, of Norwich, a celebrated divine, and mathematician.

Sir Richard Steel, of Dublin, and William Congreve, of Staffordſhire, died about the ſame time. The former wrote four comedies, and many papers in the Tatler and Spectator. The latter was the author of the Mourning Bride, and ſeven other dramatic pieces.

1732 Kouli Khan uſurped the Perſian throne, conquered the Mogul empire, and returned with 231 millions ſterling.

The ſame year, died John Gay, of Exeter, author of poems, fables, and eleven dramatic pieces.

1734 Died

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1734 Died John Arbuthnot, of Mearns-ſhire, who wrote on medicine, coins, and politics.

1736 Captain Porteus, having ordered his ſoldiers to fire upon the populace at the execution of a ſmuggler, was himſelf hanged by the mob at Edinburgh.

1738 Weſtminſter-Bridge, conſiſting of 15 arches, was begun. It was finiſhed in 1750, at the expence of 389,000l. defrayed by parliament.

1742 Died Dr. Edmund Halley, who wrote on natural philoſophy, aſtronomy, and navigation.

Dr. Richard Bentley, of Yorkſhire, whoſe publications on claſſical learning and criticiſm are well known, died the ſame year.

1744 Commodore Anſon returned from his voyage round the world.

Alexander Pope, of London, author of many elegant poetical pieces, letters, and a tranſlation of Homer, died this year.

1745 The rebellion broke out in Scotland, and the Pretender's army was defeated by the duke of Cumberland, at Culloden, April 16, 1746.

The Rev. Dr. Jonathan Swift, of Dublin, died this year. He was the author of poems, political pieces, letters, and ſermons.

1746 Died

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1746 Died Colin Maclaurin, of Argyleſhire, author of a treatiſe on Algebra, and a view of Newton's philoſophy.

1748 The peace of Aix-la-Chapelle was concluded, by which a reſtitution of all places, taken during the war, was to be made on all ſides.

James Thomſon, of Roxburghſhire, author of the Seaſons, five tragedies, and other poems, died this year; as did alſo the Rev. Dr. Iſaac Watts, of Southampton, author of logic, philoſophy, pſalms, hymns, and ſermons; and Dr. Francis Hutcheſon, of Airſhire, who wrote a ſyſtem of moral philoſophy.

1749 The intereſt of the Britiſh funds was reduced to three per cent.

1750 The Rev. Dr. Conyers Middleton, of Yorkſhire, author of the Life of Cicero, died; as did alſo Andrew Baxter, of Old Aberdeen, who wrote on metaphyſics, and natural philoſophy.

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CHAP. LXXIV.

MEMORABLE EVENTS OF THE EIGHTEENTH CENTURY CONTINUED.

A. D. 1751 FREDERIC, Prince of Wales, father to his preſent Majeſty, died.

About the ſame time, died Henry St. John, Lord Bolingbroke, who wrote on philoſophy, metaphyſics, and politics; as alſo Dr. Alexander Monro, of Edinburgh, author of the anatomy of the human body.

1752 The new ſtyle was introduced into Great Britain; the third of September being counted the fourteenth.

1753 The Britiſh Muſeum was erected at Montague-houſe.

1754 Died Dr. Richard Mead, of London, who wrote on poiſons, the plague, medicine, and precepts.

Henry Fielding, of Somerſetſhire, author of Tom Jones and Joſeph Andrews, died the ſame year.

1755 Liſbon was deſtroyed by an earthquake.

1756 One hundred and forty-ſix Engliſhmen were confined in the Black-Hole at Calcutta, in the

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the Eaſt Indies, by order of the Nabob, and 123 were found dead next morning.

1757 Damiens attempted to aſſaſſinate the French king.

Colley Cibber, of London, died, who wrote 25 tragedies and comedies.

1759 General Wolfe was killed in the battle of Quebec, which was gained by the Engliſh.

1760 King George II. died, on the 25th day of October, in the 77th year of his age, and was ſucceeded by his preſent Majeſty, who, on the 22d of September, 1761, married the princeſs Charlotte, of Mecklenburgh Strelitz.

Black-Friars-Bridge, conſiſting of nine arches, was begun. It was finiſhed in 1770, at the expence of 152,840l. to be diſcharged by a toll.

1761 Died Thomas Sherlock, biſhop of London, author of ſixty-nine ſermons; and Benjamin Hoadley, biſhop of Wincheſter, who publiſhed ſermons and controverſial writings.

About the ſame time, Samuel Richardſon, of London, author of Grandiſon, Clariſſa, and Pamela, died; as alſo the Rev. Dr. John

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John Leland, of Lancaſhire, who wrote an Anſwer to the Deiſtical Writers.

1762 Peter III. emperor of Ruſſia, was depoſed, impriſoned, and murdered.

George Auguſtus Frederic, prince of Wales, was born on the 12th of Auguſt.

1764 The parliament granted 10,000l. to Mr. Harriſon, for his diſcovery of the longitude by his time-piece.

Hogarth, the celebrated painter, author of the Analyſis of Beauty, died this year.

1765 An act paſſed for annexing the ſovereignty of the iſland of Man to the crown of Great Britain.

The Rev. Dr Edward Young, author of the Night Thoughts, three tragedies, and other poems, died this year; as did alſo Robert Simſon, of Glaſgow, author of conic ſections, and a tranſlation of Euclid and Apollonius.

1766 On the 21ſt of April, a ſpot or macula of the ſun, more than thrice the bigneſs of our earth, paſſed the ſun's centre.

1768 The Academy of Painting was eſtabliſhed in London.

The ſame year, died the Rev. Lawrence Sterne,

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Sterne, author of the Sentimental Journey, Triſtram Shandy, and 45 ſermons.

1770 Died the Rev. Dr. Jortin, author of the Life of Eraſmus, Eccleſiaſtical Hiſtory, and ſermons; as alſo Dr. Mark Akenſide, of Newcaſtle upon Tyne, author of poems.

Dr. Tobias Smollett, of Dumbartonſhire, who wrote a Hiſtory of England, novels, and tranſlations, died the ſame year.

1771 Dr. Solander and Mr. Banks, in his Majeſty's ſhip the Endeavour, lieutenant Cook, returned from a voyage round the world, having made ſeveral important diſcoveries in the South Seas.

Thomas Gray, profeſſor of modern hiſtory, Cambridge, author of the beautiful *Elegy* in a *Country Church-Yard*, and other poems, died this year.

1772 The king of Sweden changed the conſtitution of that kingdom.

The Pretender married a princeſs of Germany, grand-daughter of Thomas, late earl of Ayleſbury.

The emperor of Germany, empreſs of Ruſſia, and the king of Pruſſia, ſtripped the king of Poland of great part of his dominions,

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which they divided among themſelves, in violation of the moſt ſolemn treaties.

1773 Captain Phipps (the late lord Mulgrave) was ſent to explore the North Pole; but having made eighty-one degrees, was in danger of being locked up by the ice, and his attempt to diſcover a paſſage in that quarter proved fruitleſs.

1773 Died Philip Dormer Stanhope, earl of Cheſterfield, author of Letters; as alſo George lord Lyttelton, of Worceſterſhire, who wrote a *Hiſtory of England.*

The Jeſuits were expelled from the pope's dominions, and ſuppreſſed by his bull, on the 25th of Auguſt.

1774 The Britiſh parliament having paſſed an act, laying a duty of three-pence a pound upon all teas imported into America, the coloniſts, conſidering this as a grievance, denied the right of the Britiſh parliament to tax them.

Oliver Goldſmith, who wrote poems, eſſays, and ſeveral hiſtories, died this year; as alſo Zachary Pearce, biſhop of Rocheſter, author of Annotations on the New Teſtament.

1775 The

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1775 The first action happened in America between the king's troops and the provincials at Lexington, on the 19th of April. On the 17th of June, there was a bloody action.

Dr. John Hawkesworth died this year. He was the author of the Adventurer, a periodical publication of great merit.

1776 The congress declared the American colonies free and independent states.

David Hume, author of the History of England, and essays, died this year; as also James Ferguson, of Aberdeenshire, the famous astronomer.

1777 Lieutenant-general Burgoyne was obliged to surrender his army at Saratoga, in Canada, by convention, to the American army under the command of the generals Gates and Arnold.

Samuel Foote, of Cornwall, the celebrated wit and comedian, died this year. He wrote some humorous dramatic pieces.

1778 A treaty of alliance was concluded at Paris, between the French king and the thirteen united American colonies, in which their independence was acknowledged by the court of France.

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1778 An engagement was fought off Breſt between the Engliſh fleet under the command of admiral Keppel, and the French fleet under the command of the count d'Orvilliers, on the 27th of July.

1779 Died David Garrick, of Hereford, one of the firſt actors that ever appeared on any ſtage. He wrote ſeveral dramatic and poetical pieces.

The ſame year died William Warburton, biſhop of Glouceſter, author of the Divine Legation of Moſes, and various other works.

CHAP. LXXV.

MEMORABLE EVENTS OF THE EIGHTEENTH CENTURY CONTINUED.

IN the year 1780, torture in courts of juſtice was aboliſhed in France; and the *Inquiſition* was aboliſhed in the duke of Modena's dominions.

On the 9th of June, the *Proteſtant Aſſociation*, to the number of 50,000, went up to the houſe of com-

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commons, with their petition for the repeal of an act paſſed in favour of the Papiſts.

That event was followed by the moſt daring riots in the city of London and Southwark, for ſeveral ſucceſſive days, in which ſome Popiſh chapels were deſtroyed, together with the priſons of Newgate, the King's Bench, the Fleet, ſeveral private houſes, &c. Theſe alarming riots were at length ſuppreſſed by the interpoſition of the military, and many of the rioters were tried and executed for felony.

On the 24th of September, general Arnold deſerted the ſervice of the congreſs, eſcaped to New York, and was made a brigadier-general in the royal ſervice.

Major André, adjutant-general to the Britiſh army, was hanged as a ſpy at Toppan, in the province of New York.

About the beginning of October, there were dreadful hurricanes in the Weſt Indies, by which great devaſtation was made in Jamaica, Barbadoes, St. Lucia, Dominica, and other iſlands.

Sir William Blackſtone, judge of the court of Common Pleas, London, died this year. He wrote Commentaries on the Laws of England.

Much about the ſame time died Dr. John Fothergill, of Yorkſhire, who wrote on medicine and

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philoſophy; and James Harris, author of Hermes, Philological Inquiries, and Philoſophical Arrangements.

In 1781, on the 19th of October, earl Cornwallis, with a conſiderable Britiſh army, ſurrendered priſoners of war to the American and French troops, under the command of general Waſhington and count Rochambeau, at York-Town, in Virginia.

A new planet was diſcovered by Dr. Herſchel.

In 1782, the houſe of commons addreſſed the king againſt any farther proſecution of offenſive war on the continent of North America, and reſolved, that that houſe ſhould conſider all thoſe as enemies to his majeſty, and this country, who ſhould adviſe, or by any means attempt, offenſive hoſtilities, for the purpoſe of reducing the revolted colonies to obedience by force.

On the 12th of April, admiral Rodney obtained a ſignal victory over the French fleet, under the command of count de Graſſe, near Dominica, in the Weſt Indies.

The credit of the Britiſh arms was well ſuſtained at Gibraltar, under general Elliot the governor, and their formidable attack on the 13th of September, with floating batteries of 212 braſs cannon, and red-hot bullets, ended in the deſtruction of the

Spaniſh

Spaniſh ſhips, and a great number of their men. The garriſon was relieved by lord Howe, in the month of October, who offered battle to the combined force of France and Spain, though twelve ſail of the line inferior.

Thomas Newton, biſhop of Briſtol, died this year. He was the author of Diſcourſes on the Prophecies and other works.

Sir John Pringle, bart. of Roxburgſhire, who wrote on the Diſeaſes of the Army, died the ſame year; as alſo Henry Home, lord Kaimes, of Edinburgh, author of the Elements of Criticiſm, and Sketches of the Hiſtory of Man.

On the 8th of October, a treaty was concluded betwixt the republic of Holland and the United States of America.

On the 30th of November, proviſional articles of peace were ſigned at Paris, between the Britiſh and American commiſſioners, by which the Thirteen United American colonies were acknowledged by his Britannic majeſty to be free, ſovereign, and independent ſtates.

In 1783, the definitive treaty of peace was ratified between Great Britain, France, Spain, and the United States of America.

Lord Shelburne and his colleagues, the peace-makers, were obliged to withdraw from power;

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for a majority of the commons enlisted under the banners of the *famous coalition leaders*, Mr. Fox and lord North, who were made secretaries of state, and the duke of Portland first lord of the Treasury, on the 2d of April.

On the 19th of December, between twelve and one of the morning, a royal message was sent to the two secretaries just mentioned, desiring them to send the seals of their office immediately; and Mr. Pitt succeeded the duke of Portland as first lord of the Treasury, bringing his friends into the respective departments, which formed the *tenth* administration since his majesty's accession.

A bill brought into parliament by Mr. Fox, for new regulating the government of the East India company, and their commercial affairs and territories, which was thought to be unconstitutional, occasioned the dismission, and political death of the *coalition ministry*.

Dr. William Hunter, of Lanerkshire, the celebrated anatomist, died this year.

In 1784, the great seal was stolen from the lord-chancellor's house in Great Ormond-street.

On the 26th of May, the memory of Handel was commemorated by a grand jubilee, at Westminster Abbey.

On

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On the 15th of September, Mr. Lunardi aſcended in a balloon from the Artillery-Ground, Moorfields, being the firſt attempt of the kind made in England.

Dr. Samuel Johnſon, of Litchfield, author of the Engliſh Dictionary, Rambler, Idler, Lives of the Engliſh Poets, Raſſelas, and ſeveral poetical pieces, died on the 13th of December, aged 71.

In 1785, admiral Sir Edward Vernon, and count Zamberacci, aſcended in a balloon from the vicinity of Tottenham-court-road. The balloon went ſo high that the clouds appeared at a great diſtance below. They heard a peculiar noiſe among the clouds, ſometimes like what is produced by the wind among the trees, though of a ſhriller tone. In deſcending they paſſed through a denſe cloud, which poured ſnow upon them, and felt very cold. They ſet their feet on *terra firma* again, near Horſham, in Suſſex, having travelled 35 miles in leſs than an hour.

William Whitehead, poet laureat, who wrote poems and plays, died this year.

In 1786, on the 2d of Auguſt, as the king was alighting from his carriage at the palace-gate, a woman, named Margaret Nicholſon, who was waiting there, under pretence of preſenting a petition, ſtruck at his majeſty with a knife, but providentially his majeſty received no harm. The woman was

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immediately taken into cuſtody, and upon examination appeared to be inſane.

On the 27th of October, a young man, by trade a baſket-maker, who had undertaken, for the ſum of twenty pounds, to bring to the ground the weather-cock upon the ſpire of the old Abbey church of St. Alban's, ſucceeded in his enterprizing and very hazardous attempt. He deſcended about four o'clock in the afternoon, amidſt the applauſe of a great concourſe of people. He made his ſcaffold from the ground to the top of the ſpire entirely with *ozier twigs*, forming a *ſerpentine* paſſage, with a kind of landing-place, (if the phraſe may be allowed) every ſix or eight ſteps.

In 1787, died the learned Dr. Lowth, biſhop of London, author of an Engliſh grammar, a tranſlation of Iſaiah, and ſome poetical pieces.

The ſame year, a commercial treaty with France was concluded.

In 1788, the trial of Warren Haſtings, Eſq; late governor-general of Bengal, commenced before the high court of parliament, for high crimes and miſdemeanors.

Thomas Sheridan, Eſq; author of a much approved Engliſh Dictionary, and father of R. B. Sheridan, Eſq; M. P. for Stafford, died this year; as alſo

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alſo Dr. Cotton, phyſician at St. Alban's, author of *Viſions* in *Verſe*.

In 1789, during the month of January, there was a more ſevere froſt than has happened ſince that memorable one in 1740. The river Thames was completely frozen over in ſeveral parts, inſomuch that booths for recreation were erected, and a variety of ſports and amuſements commenced. One of the ſuttling-booths had for its ſign, "Beer, wine, and ſpirituous liquors, *without a licence*." A man who ſold hot gingerbread had a board, on which was written, "No ſhop tax nor window duty."

On the 23d of April, the king, queen, and royal family, with the members of both houſes of parliament, went in proceſſion to St. Paul's cathedral, in order to return thanks to the Supreme Being for his majeſty's providential recovery from his late indiſpoſition.

A revolution happened in France this year. The Baſtille was demoliſhed, the government was new-modelled, and the power of the king very much abridged.

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CHAP. LXXVI.

MEMORABLE EVENTS CONTINUED.

AS his majeſty, in the month of January, 1790, was paſſing near the Horſe-guards, in his way to the Houſe of Lords, a perſon of genteel appearance, threw a large ſtone with great violence into the carriage, but fortunately miſſed the royal perſon. He was immediately apprehended, and underwent a long examination, in which it appeared that he was an officer on half-pay, of the name of Frith, who had been long known to be inſane, and ſaid he committed this outrage with a view of making himſelf famous.

During the year 1791, in ſpite of every precaution, which the moſt ſuſpicious prudence could ſuggeſt, Lewis XVI. found means to elude the vigilance of his guards, and to effect his eſcape from a court, where he rather reſembled a degraded captive, than the monarch of a powerful kingdom.

On the evening of Monday, the 20th of June, the queen, accompanied by the dauphin, and the reſt of her family, left the palace of the Thuilleries, in the face of the people, under pretext of taking an airing, repaired to a carriage then waiting at a convenient

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convenient diſtance, and, with the aſſiſtance of horſes, purpoſely and ſecretly provided, haſtened to the frontiers of the Imperial dominions. The king followed them during the night, accompanied by monſieur, his eldeſt brother.

At eight o'clock on Tueſday morning, when the report of their eſcape was firſt propagated through the capital, Paris exhibited a ſcene of confuſion, equalled only on that memorable day, when the demolition of the Baſtille proclaimed to its inhabitants a revolution in the government. "The king is fled!" was repeated in a tone of mingled apprehenſion and incredulity. In an inſtant all the ſhops were ſhut. The dreadful thundering of cannons, to diffuſe and confirm the alarming intelligence, the diſcordant tone of the *tocſins* *, the aſſembling of the troops, the claſh of arms, the clamours, the groans of the Pariſians,—all formed a horrid combination of ſounds, more reſembling the *diſmal yell* of tortured ſouls in the dreary manſions of Pluto, than any terreſtrial noiſe.

The royal fugitives, however, had not proceeded further than Metz, in Lorraine, about 90 miles from Paris, when the king was diſcovered by one of a body of national troops that were manœuvring

* Fire-bells.

near the place. He inſtantly gave the alarm and the retinue were ſtopt, and the royal family conducted back to Paris, under a ſtrong guard, which was gradually augmented as they approached the metropolis.

On the 14th of July, there were dreadful riots at Birmingham. A public meeting having been announced to commemorate the anniverſary of the French revolution, at the hotel in Temple-Row, a number of perſons repaired thither for that purpoſe; but a mob aſſembling in the evening, deſtroyed all the windows of the building, demoliſhed Dr. Prieſtley's chapel, his houſe at Fair Hill, and ſeveral other houſes. The Doctor's grand philoſophical apparatus, his extenſive and valuable library, together with his manuſcrips and furniture, were all committed to the flames. The riots continued five or ſix days, during which time, the mob, being reinforced by many thouſands from the neighbouring country, razed to the ground, and reduced to aſhes, a great number of fine edifices.

Dr. Price, of Hackney, whoſe ſermons, theological diſſertations, and political writings, are well known, died this year.

A committee of the Royal Academy met in St. Paul's, to conſider the poſition of Dr. Johnſon's monument, and the ſize of which it ſhould be.

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They agreed that it ſhould be placed on the left hand ſide of the dome of that fabric, and that the figure ſhould be eight feet high, upon a pedeſtal of ſix feet. Mr. Bacon, the ſtatuary, attended, and produced his model for the monument, which was univerſally approved of. It repreſents Dr. Johnſon in a Greek philoſopher's dreſs, with his head leaning on one hand, in an attitude of meditation, and a ſcroll of parchment in the other.

CHAP. LXXVII.

EVENTS CHIEFLY RELATING TO FRANCE.

IN the year 1792, on the 10th of Auguſt, the Swiſs guards of the king of France were maſſacreed. The people aſſembled in thouſands about the Thuilleries. The cannon were pointed upon the palace, which was guarded by a body of Swiſs. The Swiſs having been inſulted, and hard preſſed upon by thoſe who came againſt them, were at laſt obliged to fire in their own defence. The mob, however, finally prevailed, and, horrid to relate! the Swiſs, conſiſting of above 500, almoſt to a man, were

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were inhumanly butchered. All the doors and windows of the palace were broken, and the furniture entirely deſtroyed.

During all theſe diſorders, the king and royal family were ſitting among the deputies of the national aſſembly, where they had taken refuge. There the king heard pronounced the decree which deprived him of all his functions, and of every *atom* of power; which *caſhiered* his miniſters, *annihilated* the civil liſt, and *convoked* the primary aſſemblies, in order to appoint deputies to a *national convention*.

On the 2d of September, intelligence of the inveſtment of Verdun was firſt received in Paris. The citizens aſſembled in the Champ de Mars, and with one voice devoted themſelves for ſervice againſt the enemy.

They had enemies, however, within the walls of the city. With regard to them a *dreadful* reſolution was taken; and the phrenzied populace divided into parties.

The priſons were forced, and all who were impriſoned for alledged crimes againſt the ſtate, were put to the ſword one by one, as they were let out of the priſon. About 161 clergymen, who had been confined in the Carmelite convent, were brought forth two by two, and inſtantly diſpatched. M. Montmorin, the late governor of Fontainbleau, was

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was killed while two of the National Aſſembly ſtood over him. Madame Lamballe, half ſiſter of duke of Orleans, and niece to the king of Sardinia, was alſo put to death.

At two o'clock, on Sunday afternoon, three alarm guns were fired; the tocſin was ſounded, and the general was beat. From ſeven o'clock, on that evening, to day-break on Monday, ſlaughter pervaded Paris; and the ſtreets were ſtrewed with the carcaſes of the mangled victims.

Leopold, emperor of Germany, died this year; and the king of Sweden was ſhot at a maſquerade, by one of his own ſubjects.

This year alſo, died two gentlemen, whoſe ſuperior excellence in their reſpective arts was univerſally acknowledged; viz. Sir Joſhua Reynolds, the firſt portrait-painter of the age, and the ingenious architect, Mr. Adam, to whom we are indebted for the elegant Adelphi-Building in the Strand.

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CHAP. LXXVIII.

REMARKABLE POLITICAL EVENTS.

IN the month of October, 1792, the duke of Brunſwick, commander of the confederate German and Pruſſian troops, iſſued threatening proclamations againſt the French, in the ſtyle of general Burgoyne, and had well nigh met with that commander's fate. But, with the remains of a diſeaſed and almoſt famiſhed army, he made good his retreat within the German confines.

The French, breathing the ardour of a naſcent republic, as well as that of their own national character, elated beyond all bounds by ſucceſs, ſprang forth on all ſides with wonderful energy. In Savoy, Geneva, Brabant, and certain towns in Germany, their ſway was owned, their principles avowed, and their protection courted. The repulſe of the French by the Pruſſians from Frankfort, did not form any thing like a counterbalance to the ſucceſſes of Dumourier, Cuſtine, and other commanders.

The national convention proceeded in the plan of propagating their principles and their power, to give orders for opening the navigation of the Scheldt.

Many

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Many are of opinion, that in this matter, Holland is moſt ſeriouſly intereſted. For, ſay they, as Amſterdam and other towns in Holland, by the ſhutting up of the Scheldt, roſe on the ruins of Antwerp; ſo, by the re-opening of that river, Antwerp and the Catholic Netherlands would flouriſh again at the expence of the United Provinces. Others, however, think that the commerce of Holland would not be much affected by it.

The varying aſpect of the political horizon in France caſt a varying light and ſhade over the neighbouring countries, animating or diſcouraging the friends of liberty and innovation on the one hand, and thoſe of eſtabliſhed governments on the other. In Britain, in the earlier part of the year, a ſociety was formed under the name of *Friends to the People*, at the Freemaſon's Tavern; and other ſocieties, branching from this, were united by correſpondence in different parts of the country. The march of the duke of Brunſwick into France caſt a damp on theſe ſocieties, and all who abetted them. His retreat, however, revived their ſpirits, and they were ſuſpected of promoting diſturbances.

A *Royal Proclamation* called on all who held offices under government, and wiſhed well to the Britiſh conſtitution, to keep order, and to carry the laws againſt all riots and diſorders into execution with vigour.

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vigour. This tried and proved the principles of the Britiſh nation, which, particularly in England, appeared to be on the ſide of the preſent order of affairs in the church, as well as in matters of government. Aſſociations were every where formed in oppoſition to all turbulence and ſedition; more numerous than the ſocieties abovementioned.

The *parliament*, which, from the apprehenſion of danger, was all on a ſudden ſummoned to meet, before the uſual time, breathed the ſame ſpirit that had already appeared throughout the nation.

In *Scotland*, however, where every man, from the peer to the beggar, can read, and does read every thing that falls into his hands, the pamphlets of Mr. Paine, and others of a ſimilar nature, made a very ſenſible and general impreſſion.

Mr. Dundas, the *ſecretary of ſtate*, being roughly handled on his viſit to his native country, endeavoured to recover his influence by bringing into parliament a bill for the eſtabliſhment of a *militia* in Scotland, and another for granting relief to the poor Highlanders, labouring under the miſerable effects of a rainy and backward ſeaſon.

The Alien Bill was paſſed, by which all foreigners, who could not give a ſatisfactory account of themſelves, were obliged to leave the kingdom.

In

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In *Ireland*, the Roman Catholics held a convention for the purpoſe of claiming the right of electing and being elected to parliament.

In Scotland, a kind of convention was alſo held for the purpoſe of regulating elections, and doing away fictitious votes; which will be a conſiderable diminution of the ariſtocratical influence in Scotland. The burgh-reformers in that country perſevered in aſſembling, petitioning, and remonſtrating.

In the *Eaſt-Indies*, lord Cornwallis crowned a ſucceſsful war with a happy and glorious peace.

Several bills were paſſed, and others introduced into parliament, in favour of *humanity*; among which *lord Rawdon's bill* for the relief of *unfortunate*, not *fraudulent* debtors, is moſt diſtinguiſhed.

More rain has fallen this year, than during any former year for a *century* paſt.

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CHAP. LXXIX.

LAST WILL OF LOUIS XVI.

ON Chriſtmas-day, the king of France made his laſt will and teſtament, as follows:

"This 25th of December, 1792, I, Louis, Sixteenth of the name, King of France, impriſoned in the *Temple* for more than four months, by thoſe who were my ſubjects, involved in a trial, of which the iſſue cannot be known, from the paſſions of men, in the preſence of God declare my ſentiments.

"I leave my ſoul to God, my Creator, praying him not to judge it according to my merits, but by his infinite goodneſs and mercy in Jeſus Chriſt.

"I commend to God my wife, my children, and my ſiſter. I recommend my children to my wife, and intreat her to watch over their education. I pray my ſiſter to continue her tenderneſs to my children. I intreat my wife to pardon me for what ſhe has ſuffered on my account; and I recommend to my children to obey their mother, and always to have God before their eyes.

"I recommend to my ſon, if ever he becomes king, to think only of the happineſs of his fellow-citizens,

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citizens, and to be mindful that he never can be happy, but by ruling according to the laws.

" I recommend to my ſon the perſons who have been attached to me.

" I pardon thoſe who have become mine enemies, and I pray God to pardon them in the ſame manner.

" I pray thoſe, whom I may have offended by diſregard, to pardon the ill I have done them.

" I beg M. M. of the commune to deliver to my valet, Clery, my cloaths, my watch, and the trifles that were taken to the commune.

" I beg M. M. Maleſherbes, Tronchet, and de Seze, to receive my tender acknowledgment.

" I proteſt that I am not guilty of the crimes, with which I am reproached, and that I neglected nothing to remove from my dominions the ſcourge of war, and prevent the invaſion of the Pruſſians and Germans."

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CHAP. LXXX.

THE FATE OF LOUIS DECIDED.

AT eight o'clock in the evening of the 16th of January, 1793, the queſtion of the puniſhment to be inflicted on Louis Capet was agitated in the national convention, and laſted for twenty-four hours. Moſt of the members prefaced their opinions with their reaſons; and, on the 17th, the preſident announced the reſult of the whole. Out of 721 votes, 366 were for death, 319 for impriſonment during the war, two for perpetual impriſonment, eight for a ſuſpenſion of the execution of the ſentence of death, till after the expulſion of the family of the Bourbons. *Twenty-three* were for not putting him to death, unleſs the French territory was invaded by any foreign power; and *one* was for death, but commutation of puniſhment. The preſident in conſequence declared, "That the national convention pronounced ſentence of death againſt Louis Capet."

In the ſeſſion of the 19th, the convention put the queſtion, "Whether the execution of the ſentence paſſed on Louis Capet ſhould be delayed?" At the cloſe of which, the preſident declared the following

to

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to be the reſult. Out of 748 members, 17 were abſent on commiſſion, 21 from ſickneſs, eight without any aſſigned reaſon, 12 did not vote, 310 were for delaying the execution of the ſentence, and 348 for putting it into execution.

The convention then ordered their decree to be immediately notified to the executive council, with orders to give an account the next day at eleven o'clock, of the meaſures taken to put it in execution within twenty-four hours.

It appeared by an accurate ſtatement of the votes of the national convention, upon the ſubject of the death of Louis XVI. that the majority of ſuffrages for his immediate execution was only carried by five voices.

The letter from the unfortunate Louis, read at the bar of the national convention by his counſel Seze, was written in his own hand, and expreſſed in the following terms.

"I owe it to my honour, and my family, not to ſubſcribe to a judgment that accuſes me of a crime, with which I cannot reproach myſelf. In conſequence I declare, that I appeal to the people from the deciſion of their repreſentatives, and I requeſt the national convention to decree, that mention ſhall be made thereof in the Proces-verbal.

"LOUIS."

M. de

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M. de Seze then made an energetic appeal to the convention, in the name of himſelf and his colleagues, to conſider with what a ſmall majority the puniſhment of death was pronounced againſt Louis, and conjured them not to afflict France by ſo terrible a judgment. He concluded by invoking eternal juſtice and humanity to determine the convention to refer their judgment to the people.

M. Maleſherbes deſired till the next day to make ſuch reflections, as ruſhed upon his imagination.

M. Tronchet declared it extraordinary, that whilſt moſt of the voters quoted the *Penal Code* to juſtify their judgment, they forgot that the law requires two thirds of the voices for the deciſion.

Notwithſtanding theſe juſt and humane obſervations of the king's counſel, the previous queſtion being called, the *appeal* to the people and the obſervations of the *counſel* were rejected.

Louis then requeſted a reſpite of three days, to prepare his ſoul for God; that he might be left uninterrupted with his confeſſors; that he might ſee his family; and finally to recommend the latter to the nation.

The convention, however, ordered him to be executed within twenty-four hours.

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CHAP. LXXXI.

EXECUTION OF LOUIS XVI.

THE following are the particulars of the king's execution.

On Monday the 21ſt of January, at ſix o'clock in the morning, the king went to take farewell of the queen and royal family. After ſtaying with them ſome time, and taking an affectionate farewell of them, the king, agreeable to the proclamation of the *proviſional executive council*, at eight o'clock in the morning, was conducted from the tower of the Temple, and entered the carriage of the mayor of Paris, accompanied by Mr. Edgeworth, an Engliſh prieſt of the Catholic perſuaſion, and two members of the municipality, and attended by the commiſſioners of the department of Paris, the commiſſioners of the municipality, the members of the *criminal tribunal*, and general Santerre, with a ſtrong detachment of national guards. They paſſed ſlowly along the Boulevards, which led from the Temple to the place of execution. All women were prohibited from appearing in the ſtreets, and all perſons from being ſeen at their windows.

The greateſt tranquillity prevailed in every ſtreet through which the proceſſion paſſed. About half

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paſt nine, the king arrived at the place of execution, which was the *Place de Louis* XV. between the pedeſtal, which formerly ſupported the ſtatue of his *grand-father*, and the promenade of the *Elyſian Fields*.

On his approaching the place of execution, at the appearance of the ſcaffold, and the *guillotine*, the fatal inſtrument of death, each covered with black, he ſhrunk back with horror. But collecting himſelf, he ſtepped with firmneſs and compoſure from the carriage, and aſcended the ſcaffold with ſeeming intrepidity, amidſt the brutal huzzas of the populace, the trumpets ſounding and drums beating during the whole time.

He made a ſign of wiſhing to harangue the multitude, when the drums ceaſed, and Louis ſpoke theſe few words. "I die innocent; I pardon my enemies; I only ſanctioned, upon compulſion, the *civil conſtitution* of the *clergy*." He was proceeding, but the beating of the drums drowned his voice. His executioners then laid hold of him. He laid his head on the block; the ſignal was given, and in an inſtant after, the fatal inſtrument falling, his head was ſeparated from his body. This was about a quarter paſt ten o'clock in the morning.

The ſcaffold was ſurrounded by ſoldiers, and none of the people were permitted to approach it.

His

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His hair was dreſſed, and rolled up behind, as abbés wear theirs. He wore a brown ſurtout coat, white waiſtcoat, with black breeches and ſtockings, and his appearance altogether was majeſtic. The king was attended on the ſcaffold by an Engliſh prieſt as his confeſſor, not chooſing to be accompanied by one who had taken the *national oath*.

After the execution, the people threw their hats up in the air, and cried out *Vive la Nation!* Some of them endeavoured to ſeize the body, but it was removed by a ſtrong guard to the *Temple*.

Thoſe who were neareſt the ſcene, forced themſelves between the horſes of the military that formed a ſquare round the ſcaffold, and dipped their handkerchiefs in the king's blood, which ran in copious ſtreams upon the ground. Others ſmeared the points of their pikes, ſwords, and bayonets with it, crying out, "Behold the blood of a tyrant!—Thus periſh all the tyrants of the earth!" Many of the ſurrounding ſpectators at a diſtance, however, uttered no other ſounds, but groans and ſighs.

Thus ended the life of Louis XVI. after a period of four years detention; during which, he experienced from a great number of his ſubjects every ſpecies of ignominy and cruelty, which a people could inflict on the moſt ſanguinary tyrant. Louis

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XVI. who was proclaimed at the commencement of his reign the *Friend of the People*, and by the *conſtituent aſſembly*, the *Reſtorer of their Liberties*—Louis, who but a few years ſince was the moſt powerful monarch in Europe, has at laſt periſhed on the ſcaffold. Neither his own natural goodneſs of heart, his deſire to procure the happineſs of his ſubjects, nor that ancient love which the French entertained for their monarch, have been ſufficient to ſave him from this fatal judgment.

He died in the meridian of life, being only 38 years and near five months old.

CHAP. LXXXII.

FURTHER PARTICULARS RELATING TO LOUIS AND HIS FAMILY.

THE proclamation of the *proviſional executive counſil* of France, relative to the king's execution, had hardly been notified to Louis, before he requeſted permiſſion to confer with his family. The commiſſioners teſtifying their embarraſſment at

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at his requeſt, propoſed to him that his family ſhould be brought into his apartments. His wife, his children, and his ſiſter accordingly came to him; and they conferred together in the room, in which he was accuſtomed to dine. This interview laſted two hours and a half. Their converſation was very earneſt.

Rumour ſays, that the queen had been for ſome days in a ſtate of diſtraction,—that at times her mind was totally abſent, and ſhe was to be rouſed from lethargy to a ſenſe of her ſorrows.

When M. de Maleſherbes, one of his counſel, announced to Louis the fatal ſentence of death, "Ah!" exclaimed he, "I ſhall then at length be delivered from this cruel ſuſpenſe."

The king wiſhed to cut off his hair. Sciſſars were refuſed him;—they took away his knife.—"Fools," ſaid he, "to think I would baſely turn my hand againſt my own life!"

His family aſked, whether they might not ſee him again in the morning? To this he made no anſwer, and madame Elizabeth ſaw him no more.

Addreſſing herſelf to the ſon, Maria Antoinette ſaid, "Learn by the misfortunes of your father not to avenge his death."

The body of Louis was carried to the burying-ground of St. Magdalen's church. To accelerate

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its diſſolution, lime was thrown into the grave, which was dug twelve feet deep. Guards were placed to prevent his being taken away in the night.

The king's hair was cut off, diſtributed, and ſold to the crowd.

Louis XVI. aſcended the throne on the 10th of May, 1774; was driven from the Thuilleries on the 10th of Auguſt, 1772; thrown into priſon on the 14th of September, and dethroned on the 22d of the ſame month.

On the night of that day, on which the head of the unfortunate Louis was cut off, all the play-houſes were open as uſual. In the *Theatre de la Nation*, the tragedy of *Brutus* was acted; and the audience teſtified their approbation of the following line, by long and uninterrupted plaudits:

"Dieux! donnez nous la mort plutot que l'eſclavage!"

Immediately before leaving the *Temple*, Louis XVI. confided to the care of Clery, his valet de chambre, the following articles. 1. A gold ring, with the letters M. A. A. A. (Maria Antoinetta, Archduchеſs of Auſtria) with the date, April 19, 1770. 2. A curious ſilver ſeal, which formed three diſtinct ones at pleaſure; one with the arms of

of France, another with L. L. and a third with an engraving of Mars. This was to be delivered to his ſon. 3. The hair of Maria Antoinette, which was to be returned to her, with this meſſage, "That her huſband had refrained from taking leave of her, in order to avoid the horrors of a ſeparation."

At the particular requeſt of the ci-devant queen, the commune ordered mourning for her and her family.

The *twenty-firſt* day of the month was ſingular, ominous, and fatal to Louis XVI.

On the 21ſt of April, 1770, he was married.—On the 21ſt of June, 1770, the *Fete* took place on account of his marriage, when about 1500 perſons loſt their lives.—The *grand Fete*, on account of the birth of the dauphin, was given on the 21ſt of January, 1782.—His *flight* to *Varennes* happened on the 21ſt of June, 1791.—The 21ſt of September, 1792, was remarkable for the *abolition of royalty*; and the 21ſt of January, 1793, will ever be memorable for Louis's *execution*.

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CHAP. LXXXIII.

AN ASSASSINATION.

PELLETIER St. Fargeau, one of the members of the convention, was aſſaſſinated by Paris, a royal guard du corps, for voting the death of the king. As St. Fargeau was going out of a houſe where he was accuſtomed to dine, Paris followed him, and told him he was a villain. St. Fargeau anſwered that he was not. "You are," retorted Paris, "you voted for the king's death."

"I voted," replied St. Fargeau, "according to my conſcience." Immediately on this, Paris drew a ſabre, and ſtabbed him in the abdomen. St. Fargeau died within two hours.

It was decreed that the whole convention ſhould accompany the funeral of the deceaſed in a body, that his name ſhould be inſcribed in the Pantheon, and his murderer proſecuted. It was alſo decreed, that the laſt words of Pelletier ſhould be engraven on his tomb. "I am content to die. *As I have ſhed my blood for my country, I hope it will tend to conſolidate liberty, and make known its enemies.*"

M. de St. Fargeau was preſident of the parliament of Paris. He was a very rich man, and during the conſtituent aſſembly, was an ariſtocrat.

CHAP.

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CHAP. LXXXIV.

A DECLARATION OF WAR.

ON the 1ſt of February, a declaration of war againſt this country and Holland was decreed by the national convention, in the following terms:

1. In the name of the French nation, the national convention declares, that it is at war with the king of England, and the ſtadtholder of Holland.

2. The national convention charges the executive council, immediately to put in action all the forces of the republic.

3. The national convention authorizes the executive council to diſpoſe of the naval forces of the republic, as the intereſt of the ſtate may ſeem to require, and revokes all previous laws to a contrary effect.

"The court of London," ſaid Briſſot, "is determined on war. You can no longer entertain any doubt of it. Our ambaſſador is diſmiſſed, armaments are raiſed againſt us, and all French citizens, reſiding in or coming to England, are ſubjected to the moſt inquiſitorial, vexatious, and dan-

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gerous formalities. An embargo has been laid on our veſſels, and a ſquadron ſent into the Scheldt, to interrupt our operations in the Low Countries.

" Let one idea, therefore, electrify your ſouls. Remember you fight, not merely for yourſelves, but for every nation in Europe. Let the trader forget his commerce to become a privateer; and let thoſe, who can furniſh corn and other proviſions, renounce all ſpeculation, and carry plenty into our markets. Let every citizen be ready to march, like a *Roman ſoldier*, not only with his arms, but alſo with proviſions for a given time.

" Let Frenchmen compoſe but one great army. Let all France be one camp. Let us prepare for ruins and misfortunes, and accuſtom ourſelves to live without thoſe comforts, which we once might have deemed neceſſary. The moment is approaching, when it will be a crime for one citizen to have two coats, whilſt one ſingle brother or ſoldier ſhall be uncloathed.

" A declaration of war againſt England, is, at the ſame time, a declaration of war againſt the ſtadtholder, who, during the whole courſe of the revolution, has favoured the *emigrants* and Pruſſians, and treated with inſolence the French government, and now joining his veſſels to thoſe of England, again favours our enemies, in reſtraining the importation of corn into France."

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The moſt remarkable late events beſides, are, a declaration of war on the part of his holineſs the pope, the maſſacre of the French ambaſſador at Rome, and the arrival of Dumourier at Dunkirk, to put himſelf at the head of the French troops, for an immediate invaſion of Holland.

About eight days after the king's execution, monſieur, his brother, iſſued a proclamation at Ham in Weſtphalia, declaring himſelf regent of France, during the minority of his nephew; and ſoon after the *dauphin* was proclaimed king of France, under the title of Louis XVII. at Coblentz, and acknowledged as ſuch by the king of Pruſſia and emperor.

On the 24th of February, the foot guards, commanded by the duke of York, embarked for Holland, in order to aſſiſt the Dutch, who had opened their ſluices, and laid part of their country under water, to prevent the invaſion of the French.

The ſame day Breda ſurrendered to the French, after a great number of bombs were thrown into it, which made conſiderable havoc among the houſes.

On the firſt of March, the Auſtrian army, under general Clairfait, repulſed the French army, and compelled them to retreat beyond Aldenhaven, with the loſs on the ſide of the French of 2000 men killed, wounded or taken priſoners, 12 pieces of cannon, 13 ammunition waggons, and the military cheſt.

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On the following day, his royal highneſs the archduke attacked ſeveral French batteries, and took nine pieces of cannon.

On the third of March, the prince de Saxe Cobourg obtained a moſt complete victory over the French, chaſing them out of Aix la Chapelle, as far as Liege, with a loſs, on their part, of 4000 killed, 1600 priſoners, and more than 20 pieces of cannon.

On the ſame day prince Frederic of Brunſwick took ſome batteries at Zwalme, killed 1300 of the French at Brugge, took 700 priſoners, and marched towards Ruremonde.

The French retired from before Maeſtricht with precipitation, and left ſome baggage and cannon. They had thrown above 6000 ſhells into the town.

CHAP. LXXXV.

ON RHETORIC.

RHETORIC is the art of ſpeaking with propriety on any ſubject, being derived from the Greek word *reo*, I ſpeak. Its principal end is to *inſtruct*, *perſuade*, and *pleaſe*.

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The words *rhetoric* and *oratory* are nearly of the same signification. They are often used indifferently for each other, though some distinguish between them as between *theory* and *practice*, making it the business of a rhetorician to lay down rules and precepts for speaking elegantly, and of an orator to use and apply them judiciously in practice.

The art of rhetoric, if taken in its full extent, is almost as ancient as the use of speech; for eloquence moved men to live in society, to give mutual assistance and instruction to each other, to submit to laws, and seriously to consider and regulate their affairs.

Hence it is plain there must be *two sorts* of eloquence, the one more *simple*, suited to familiar intercourse, or conversation, and to the ordinary dealings and commerce of the world; the other of a *higher* nature, and more proper for *discourses* and *harangues* in public.

Eloquence has always flourished amongst a free people. Greece was remarkable for it, before it was over-run by Alexander, and his captains; as was Rome, before the introduction of despotism by the Cæsars. I am far from thinking that either freedom or eloquence are confined to a republican form of government. The riches, the honours, and the glorious recompences attending it in Athens

and

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and Rome, made it flourish there, and rise to a surprising height; and accordingly its credit failed and sunk, as it lost its encouragement and reward. In every age and country, therefore, where oratory is properly esteemed and encouraged, men will be excited to the study of eloquence, and make vigorous efforts to bring it to its ancient perfection.

Some may think that the art of rhetoric is a matter of little importance, and not worth the labour and application it demands. But let them consider of what use it is, on many occasions, especially at the bar, in the pulpit, and in the senate-house. Let them consider, that *Eloquence*, that fair enchantress, that universal mistress of hearts, has been seen to calm and assuage, in a moment, an unruly and mutinous people. She has been seen, in the public deliberations of a confused assembly, to make unhoped for impressions upon the most obstinate and prejudiced minds. She has been seen in camps and armies, going from rank to rank, giving life and vigour to the soldiers by the mouth of their generals, and at last triumphing by the arms of those, whom she had first conquered by her reasons.

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CHAP. LXXXVI.

OF INVENTION AND DISPOSITION.

RHETORIC hath four parts, namely, *invention*, *diſpoſition*, *elocution*, and *pronunciation*.

Invention is the finding out ſuch arguments as are ſuited, according to the nature of the ſubject, to inſtruct, perſuade, or gain the aſſent and belief of our hearers. Arguments drawn from reaſon are to inform the judgment, or to inſtruct; thoſe from the affections, are to move the paſſions, or to *pleaſe*.

Nothing concerns an orator more, than thoroughly to underſtand the frame of human nature. This knowledge will enable him to work upon thoſe affections, which the author of nature has placed in human minds, as ſecret ſprings to all our actions. Without the *pathetic*, even the juſteſt reaſoning, ſupported by the ſoundeſt learning, will appear a cold, lifeleſs, unaffecting harangue.

The chief paſſions are joy, hope, grief, and fear. The reſt are anger, love, hatred, envy, compaſſion, indignation, emulation, levity, modeſty, and impudence. Some of theſe the orator, as his ſubject requires, muſt ſhew in himſelf, if he intends to

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work upon the affections of others; for, as Horace obſerves, in his *Art of Poetry*,

'Tis nature forms and ſoftens us within,
And writes our fortune's changes in our face.
Pleaſure enchants, impetuous rage tranſports,
And grief dejects and wrings the tortur'd ſoul:
And theſe are all interpreted by ſpeech.
But he, whoſe words and fortunes diſagree,
Abſurd, unpitied, grows a public jeſt.

In ſhort, to be able to move the paſſions properly, is one of the moſt eſſential qualifications of an orator. As the archbiſhop of Cambray has obſerved from Cicero, "The whole art of eloquence conſiſts in enforcing the cleareſt proofs of any truth, with ſuch powerful motives as may affect the hearers, and employ their paſſions to juſt and worthy ends; may raiſe their indignation at ingratitude, their horror againſt cruelty, their compaſſion towards the miſerable, their love for virtue, and direct every other paſſion to its proper objects."

Diſpoſition is the ranging our arguments in the moſt orderly and proper manner.

The parts of an oration are uſually reckoned ſix; namely, exordium, narration, propoſition, confirmation, refutation, and peroration.

In

In the *exordium*, or beginning of an oration, the orator gives his audience some intimation of his subject, and prepares their mind for attention. In this part, the speaker ought to be clear, modeſt, and not too prolix.

The *narration* is a brief recital of the whole caſe, from beginning to end. This ought to be plain and perſpicuous, that it may be underſtood; likely or probable, that it may be believed; pleaſing, that it may be willingly liſtened to; and ſhort, that it may not tire the audience.

The *propoſition* propoſes the ſum of the whole diſcourſe, or matter in diſpute. If it divides the oration into parts, which ought never to exceed three, or four at moſt, it is called *partition*. The beauty of the partition or diviſion is, that it be full, diſtinct, plain, ſhort, and certain.

The *confirmation* is the ſtrengthening and confirming our cauſe, by all the proofs and arguments we can obtain from invention. In doing this, the orator places his ſtrongeſt arguments in the front, when the minds of his hearers are fired with the greateſt expectation. His weakeſt arguments he employs in the middle, where their number may render them of ſeeming importance. But he makes a reſerve of ſome of the moſt forcible reaſons to bring

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bring up the *rear*, because what the audience hear *laſt* makes the greateſt impreſſion.

In the *refutation*, or confutation, the orator anſwers all his adverſary's arguments, and takes off all objections, by ſhewing them to be abſurd, falſe, or inconſiſtent.

The *peroration*, or concluſion, recapitulates or ſums up the ſtrongeſt and principal arguments, and endeavours to gain the aſſent of the hearers by moving the paſſions. In a concluſion, an orator ſhould always obſerve brevity and vehemence.

CHAP. LXXXVII.

ON ELOCUTION, AND THE SEVEN TROPES.

THE parts of elocution are elegance, compoſition, and dignity.

Elegance conſiſts in the purity, perſpicuity, and politeneſs of language. It is chiefly acquired by reading the beſt and moſt correct authors, converſing with gentlemen and ſcholars, and by ſtudy and practice.

Compoſition regards grammatical plainneſs and propriety, by imitating the phraſe, idiom, and order

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of words made use of by the best authors, in the several sorts of stile, whether in the humble, middle, or sublime; or whether the subject be philosophical, historical, or poetical.

Dignity is that which adorns language with sublime thoughts and rhetorical flowers, such as noble tropes, moving figures, and beautiful turns, or repetitions.

A *trope* is the elegant turning of a word, from its natural and proper to a relative signification. It is derived from the Greek word *trepo*, I turn.

The chief tropes in language are *seven*; namely, a metaphor, an allegory, a metonymy, a synecdoche, an irony, an hyperbole, and a catachresis.

A *metaphor* in borrow'd words compares:
Thus, for excess, we say a *flood of tears*.

The term is Greek, and signifies *a transferring*. It is the most frequent and florid of all tropes, being a short and sprightly similitude in one word.

We speak metaphorically, when we say, a fine woman is *an angel*; a beautiful country, *a paradise*; man, *a shadow*; Christ, a *vine*; and his followers, the *branches*.

Though the metaphor be chosen on account of similitude, yet it is not properly a comparison or simile. A simile introduces a comparison or likeness,

neſs, but a metaphor ſtands for the thing itſelf. When we ſay, "The man acted *like a lion*," we ſpeak comparatively; but when we ſay, "The man is a lion," we ſpeak metaphorically.

An *allegory* is a chain of tropes:

I've paſs'd the *ſhoals*, fair *gales* now *ſwell* my hopes.

The word, which is Greek, ſignifies a ſpeaking otherwiſe; for in an allegory we convey our meaning under diſguiſed terms, and liken things to things by continued metaphors, ſtill ſpeaking one thing and meaning another; as *Venus* grows cold without *Ceres* and *Bacchus*. Here Venus is put for *love*, Ceres for *bread*, and Bacchus for *wine*.

To the allegory may be referred the *fable*, the *parable*, and the *ſimile*.

A *metonymy* takes ſome kindred name;

Juſt *heav'n*, for *God*, confounds their pride with ſhame.

The word *metonymy* ſignifies a *changing of names*; for by this trope we put one word for another, from ſome near relation or mutual dependance between them; as, I read *Milton*; that is, his writings. The whole *city* came out to meet us; that is, all the inhabitants. Age is honourable; that is, aged men.

Synecdoche

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Synecdoche the whole for part doth take,
Or part for whole, just for the metre's sake.
"While o'er thy *roof*, for *house*, loud thunders roll."

The term is Greek, and signifies *comprehension*. When we say he has no colour in his cheeks, we take the whole for a part, meaning only *redness*. By this trope a round and certain number is frequently set down for an uncertain one; as when we say, I have told you of this a *thousand* times, we mean no more than very often.

When a proper name is put for a common, or the contrary, it is called an *Antonomasia*, which is a branch of the metonymy. Thus the *orator*, with the Romans, shall mean *Cicero*; with the Greeks, *Demosthenes*. We call a rich man a *Crœsus*, and a cruel tyrant a *Nero*.

An *irony* the quite reverse intends
Of what it speaks. *Well done! right trusty friends!*

The word is of Greek original, and signifies dissimulation; for by this trope we sneeringly say one thing, and mean the contrary. This, however, is sufficiently discovered either by the tone of the voice, the character of the person spoken of, or the very nature of the thing. Thus, for instance, when we see a little boy behave impudently and undutifully to his father and mother, we are

apt

apt to cry out, A *hopeful child indeed!* Whereas from our accent in uttering the words, as well as from the nature of the caſe, it is evident we mean quite the reverſe. In like manner, if we call a *harlot* by the name of *Penelope*, a woman remarkable for her chaſtity, or a fool by the name of *Solomon*, the wiſeſt of men, the irony is immediately perceived, as well from the character of the perſons commended, as from the exorbitance of the commendation.

Hyperbole ſoars high, or ſinks too low:
He touch'd the ſkies. A ſnail don't crawl ſo ſlow.

The term is Greek, ſignifying an over-ſhooting or exceeding; for by this trope we go beyond the bounds of truth, in repreſenting things greater or ſmaller, better or worſe than they really are, in order to raiſe admiration or love, fear or contempt. When we ſay that any thing is *whiter than ſnow*, or *ſwifter than the wind*, we ſpeak hyperbolically, in order to carry the idea as far as it will poſſibly go.

A *catachreſis* words abus'd applies:
Over his grave a *wooden tomb-ſtone* lies.

It is a Greek word, and ſignifies *abuſe*; for by this trope we make uſe of an improper term, either

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either for want of a proper one, or for the ſake of boldneſs and novelty. Thus, having no appropriate and authorized name for a murderer of his prince, maſter, child, uncle, or other relation, we call ſuch a one a parricide, though the word in ſtrictneſs is only applicable to him who has murdered his father. *To ride upon a ſwitch*, is a catachreſis; and ſo is a *braſs inkhorn*. The following poetical flight is evidently of the ſame nature.

"The eaſt wind *rides* the mad Sicilian wave."

The catachreſis ſhould never be admitted, but for the ſake of neceſſity, novelty, or energy.

"————I ſteer my bark, and ſail
"On even keel with gentle gale;
"At helm I make my reaſon ſit;
"My crew of paſſions all ſubmit.
"If dark and bluſtring prove ſome nights,
"Philoſophy puts forth her lights.
"Experience holds the cautious glaſs,
"To ſhun the breakers as I paſs."

There is a general analogy and relation, ſays a judicous writer *, between all tropes. In each of them, a man uſes a foreign or ſtrange word inſtead of a proper one; and therefore ſays one thing, and

* Blackwall.

means

means ſomething different. When he ſays one thing, and means another almoſt the ſame, it is a *ſynecdoche*. When he ſays one thing, and means another mutually depending, it is a *metonymy*. When he ſays one thing, and means another oppoſite or contrary, it is an *irony*. When he ſays one thing, and means another like to it, it is a *metaphor*. A metaphor continued, and often repeated, becomes an allegory. A metaphor carried to a great degree of boldneſs is an hyperbole; and when at firſt found it ſeems a little harſh and ſhocking, and may be imagined to carry ſome impropriety in it, it is a catachreſis.

CHAP. LXXXVIII.

OF RHETORICAL FIGURES.

A Rhetorical figure is an *emphatical* manner of ſpeaking, different from the plain and ordinary way, and expreſſing either a *paſſion*, or containing

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taining a *beauty*. I ſhall take notice of ſuch as moſt frequently occur.

Apoſtrophe, addreſſing, leaves the theme:
He dies—Fade, ye fair flow'rs; be dry, thou ſtream!

The word ſignifies a *turning aſide*; for by this figure a perſon in a vehement commotion turns off from the ſubject in hand, and addreſſes heaven, earth, groves, rivers, things animate and inanimate; thereby intereſting, as it were, *univerſal nature* in his cauſe, and appealing to all the creation for the juſtneſs of his tranſport.

Prolepſis, to prevent, objects and anſwers too:
Great things, you'll ſay, but not too great for you.

The meaning of the word is prevention; for by this figure an orator ſtarts an objection, which he foreſees may be made againſt any thing he affirms, deſires, or adviſes to, and gives an anſwer to it. We have an example of the *prolepſis* in the following words of St. Paul. "But ſome men will ſay, How are the dead raiſed up, and with what body do they come? Thou fool, that which thou ſoweſt is not quickened except it die; and that which thou ſoweſt, is not that body which ſhall be, but bare grain, perhaps of wheat, or ſome other grain:

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But God giveth it a body as it pleaſeth him, and to every ſeed its own body."

Periphraſis takes many words for one:
Now night's pale empreſs quits her ſilver throne.

The term means a circumlocution, or ſpeaking round about, that is, uſing more words to expreſs any thing than are abſolutely neceſſary. Thus in the example, the *moon* is expreſſed by *night's pale empreſs*; and the ſenſe of the whole line might be comprehended in theſe few words, "*It is day-light.*"

Climax aſcends by ſteps; *folly breeds laughter,*
Laughter diſdain, diſdain makes ſhame her daughter.

The literal meaning of the term is a ladder, the figure being a gradation or amplification by ſteps, till the argument and period be beautifully finiſhed.

"The boy deſpiſes the infant, the man the boy, the philoſopher both, and the Chriſtian all."

The *anticlimax* has a very diſagreeable effect, as appears from the two following ſpecimens.

"Not only London echoes with thy fame,
"But alſo Iſlington has heard the fame."

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" Queen Semiramis was the f under of Babylon, conqueror of the eaſt, and an excellent houſewife."

In *oxymoron* contradictions meet:
What's love? *A pleaſing pain, a bitter-ſweet.*

The name itſelf implies a contradiction, ſignifying much the ſame as witty-fooliſh, or ſharp-blunt. But we muſt obſerve, that the contradictions in this figure are only ſeeming ones; for the members of a period may diſagree in appearance and ſound, but perfectly agree and be conſiſtent in ſenſe.

Proſopopeia ſpeech to things doth give:
The *ſtones* cry out, " *Let not the traitor live.*"

This figure, as the name implies, is the *fiction of a perſon.* Hereby good and bad qualities, virtues and vices, are introduced into diſcourſe as real beings; and by this we likewiſe give life and voice to things inanimate, making rocks, woods, rivers, buildings, and the like, expreſs the paſſions of rational creatures. " There lies that murderous knife."—" His ſtature reached the ſkies, and on his creſt ſat *horror* plumed."

Virgil's deſcription of *fame* is a beautiful proſopopeia:

" *Fame*, of all ills the *ſwifteſt* in its courſe,
" By motion *gathers* and *augments* its force;

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" Low *creeps* at firſt, but ſwells t' enormous ſize,
" Stalks through the world, and *towers* into the
" ſkies."

The ſacred writings abound with ſpecimens of this figure.

" Let the *heavens rejoice*, and let the *earth be glad*; let the ſea *roar*, and the fulneſs thereof; let the *field be joyful*, and all that is therein. Then ſhall all the *trees* of the wood rejoice before the Lord, for he comes to judge the earth. He ſhall judge the world with righteouſneſs, and the people with his truth."

Antitheſis, which ſignifies an *oppoſition of words or thoughts*, illuſtrates a ſubject by the introduction of contraries.

" Who ſees with equal eye as God of all,
" A hero periſh, and a ſparrow fall:
" Atoms, or ſyſtems, into ruin hurl'd,
" And now a bubble burſt, and now a world."

CHAP.

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CHAP. LXXXIX.

OF QUANTITY, ACCENT, AND EMPHASIS.

BY *quantity* I mean the diſtinction of ſyllables into *long* or *ſhort*, in reading either proſe or verſe. This depends on the various ſounds of the vowels.

By *accent* is meant that particular ſtreſs or force of ſound, which the voice lays upon any ſyllable; and though the accent is more frequently laid on a long ſyllable than a ſhort one, it is not ſo always; nor is the accent always upon the ſame ſyllables in the ſame words. The ſame word when it is a *verb*, has the accent upon the laſt ſyllable, as to convért, to rebél, to recórd; but when it is a noun, it is accented on the firſt, as a cónvert, a rébel, a récord.

In order to read well, obſerve the following directions. 1. Take pains to acquire a perfect knowledge of the ſounds of all the letters in general. 2. Pronounce every word clearly and diſtinctly. 3. Let the tone of your voice in reading be the ſame as in ſpeaking. 4. Do not read in a hurry, for fear of learning to ſtammer. 5. Read

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ſo loud as to be heard by thoſe about you, but no louder. 6. Obſerve your pauſes well, and never make any, where the ſenſe will admit of none. 7. Humour your voice a little according to the ſubject. 8. Attend to thoſe who read well, and endeavour to imitate their pronunciation. 9. Read often before good judges, and be thankful when they correct you. 10. Conſider well the place of the emphaſis in a ſentence, and pronounce it accordingly.

By emphaſis is meant a ſtronger and fuller ſound of voice, by which we diſtinguiſh the accented ſyllable of ſome word, on which we deſign to lay particular ſtreſs, and to ſhow how it affects the reſt of the ſentence. Sometimes the emphatic word muſt be diſtinguiſhed by a particular tone of voice, as well as by a ſtronger accent. On the right management of the emphaſis, depends the whole life and ſpirit of every diſcourſe. If no emphaſis be placed on any words, not only is diſcourſe rendered heavy and lifeleſs, but the meaning left often ambiguous. If the emphaſis be placed wrong, we pervert and confound the meaning wholly. To give a common inſtance; ſuch a ſimple queſtion as this, "Do you ride to town to-day?" is capable of no fewer than four different acceptations, according as the emphaſis is differently placed on the words.

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words. If it be pronounced thus: Do *you* ride to town to-day? the anſwer may naturally be, No; I ſend *my ſervant* in my ſtead. If thus: Do you *ride* to town to-day? Anſwer, No, I intend *to walk*. Do you ride *to town* to-day? No, I ride out into the *fields*. Do you ride to town *to-day?* No; but I ſhall *to-morrow*. In like manner, in ſolemn diſcourſe, the whole force and beauty of an expreſſion often depend on the accented word; and we may preſent to the hearer quite different views of the ſame ſentiment, by placing the emphaſis differently. In the following words of our Saviour, obſerve in what different lights the thought is placed, according as the words are placed, "Judas, betrayeſt thou the Son of Man with a kiſs?" *Betrayeſt* thou—makes the reproach turn, on the infamy of treachery. Betrayeſt *thou*—makes it reſt, upon Judas's connection with his Maſter. Betrayeſt thou the *Son of Man*—reſts it, upon our Saviour's perſonal character and eminence. Betrayeſt thou the Son of Man *with a kiſs*—turns it upon his proſtituting the ſignal of peace and friendſhip, to the purpoſe of a mark of deſtruction.

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CHAP. XC.

ON READING VERSE.

THERE are two ways of writing on any ſubject, namely, in proſe, and in verſe.

Proſe is the uſual method of writing, without any confinement to a certain number of ſyllables, or ranging the words in any peculiar form; which, on the contrary, verſe requires.

The words in verſe muſt be ranged ſo, as that the accent may naturally fall on ſuch peculiar ſyllables as make a ſort of harmony to the ear. This is called *metre*, that is, *meaſure*. When two or more verſes, near to each other, are made to end with the ſame or the like *ſound*, it is called *rhyme*.

There is another ſort of verſe, which has no rhyme, called *blank* verſe, the words whereof are generally diſpoſed in metre, ſo as that the accent may fall on every *ſecond*, *fourth*, and *ſixth* ſyllable; and on the *eighth*, *tenth*, and *twelfth* alſo, if the lines are ſo long. The following verſe of ten ſyllables may ſerve for an example:

"The mónarch ſpóke, and ſtráit a múrmur róſe."

But

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But our poetry allows of great and frequent variation from this rule, eſpecially in the firſt and ſecond ſyllables of the line; as in the verſe which rhymes with the former, where the accent is upon the firſt ſyllable:

" Loúd as the ſúrges when the témpeſt blóws."

There are two ſorts of metre which vary from this rule; one of them is when the line contains but ſeven ſyllables, and the accent lies on the *firſt*, *third*, *fifth*, and *ſeventh*; as in the following:

" Cóuld we, which we néver cán,
" Strétch our líves beyónd their ſpán,
" Beaúty líke a ſhádow fliés,
" A'nd our yóuth befóre us diés."

The other ſort has a haſty ſound, and requires an accent on every third ſyllable; as for example:

" 'Tís the voíce of the ſlúggard; I héar him com-
" pláin,
" You have wák'd me too ſoón, I muſt ſlúmber
" agaín."

In reading verſe you are to pronounce it juſt as if it were proſe, obſerving the ſtops with great exactneſs, and giving each word or ſyllable its due and natural accent; but with theſe two reſtrictions,

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1. Though there be no ſtop at the end of a line, make a ſmall pauſe (leſs than after a comma) before you begin the next. 2. If any word in the line has two ſounds, give it that which is moſt ſuitable to the rhyme and metre.

To favour the metre, for inſtance, the word *glittering* muſt ſometimes be pronounced as three ſyllables, and ſometimes as two, glitt'ring. And, upon the ſame account, the word *avenue* may have the accent either upon the firſt ſyllable or the ſecond; *ávenue* or avénue. Of poetry there are various kinds.

Paſtoral poetry deſcribes a ſhepherd's life, or that of rural nymphs and ſwains. *Elegy* is a mournful poem, or funeral ſong. The *Pindaric* ode, ſo called from its inventor Pindar, is a ſort of poetry which conſiſts of looſe and free numbers, and unequal meaſures. *Satire* is a free, jocoſe, witty, and ſharp poem, ſeverely inveighing againſt vice, and all corrupt manners and perſons. *Comedy* is an agreeable imitation of the actions, humours, and cuſtoms of common life. *Tragedy* repreſents, and acts over again, the calamities of illuſtrious men and women. The *Epic* or *Heroic* poem, is an intereſting relation of ſome illuſtrious and important actions of the hero celebrated in the poem; as the great exploits of Achilles in the Iliad of Homer,

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and thoſe of Æneas in the Æneid of Virgil. The *Epigram* is an inferior ſort of poem, whoſe peculiar character is brevity, beauty, and a ſharp turn of wit at the end.

As to the Acroſtic, Rondeau, Echo, &c. they are ſuch trifling pieces of art, that ſcarce any poet but in a merry vein, or on ſome jocoſe occaſion, will ever uſe them.

CHAP. XCI.

OF ACTION.

GESTURE or action, the ſpeech of the body, ſhould be decent, moderate, eaſy, various, and proper to the nature of the diſcourſe. The body muſt be erect and ſtraight, and apt for gentle flexure on either ſide.

The head ſhould ſtand right upon the ſhoulders; the neck be free and eaſy of motion; the ſhoulders not hoiſted or ſhrugged up; nor the arms much projected, except in the vehement affections of joy and grief.

The countenance, which is principally to be regarded in geſture, muſt be variouſly expreſſive of

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the paſſions; but always natural, and free from affected airs, grimace, and contortions.

Great uſe ſhould likewiſe be made of the hands, eſpecially the right hand, which ſhould frequently be applied to the left breaſt, and then let fall to the right ſide. By the hand, in ſhort, we demand, call, threaten, deteſt, admire, and expreſs our thoughts almoſt as well as by ſpeech itſelf.

Stamping with the *foot* is only permitted on the ſtage.

CHAP. XCII.

OF STYLE.

STYLE is the mode of expeſſing our thoughts in words Writers on rhetoric have reduced the kinds of ſtyle to three, which they call the plain, the ſublime, and the mediate. As the buſineſs of an orator is to inſtruct, to pleaſe, and to move the paſſions, theſe three kinds of eloquence anſwer all thoſe purpoſes. The plain ſtyle is uſed to teach, the ſublime to move, and the mediate to delight.

CHAP.

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CHAP. XCIII.

OF THE PLAIN STYLE.

PERSPICUITY, ſimplicity, and exactneſs, are the characteriſtics of this ſtyle. Simplicity of thought, purity of diction, with an inexpreſſible elegance, which affects more ſenſibly than it ſeems to do, are its greateſt ornaments. It rejects all pomp, all affectation and varniſh, and is very ſparing in the uſe of tropes and figures; but ſtill it requires neat and decent language, and abhors all meanneſs of expreſſion.

This ſpecies of ſtyle may be compared to a ſimple but elegant entertainment, where all the diſhes are of an exquiſite taſte, but nothing admitted that is either too much forced, or too exceſſive, in ſauces, ſeaſoning, and preparation.

The plain ſtyle is well adapted to narration and proof, to letters and dialogues, and, indeed, to all ordinary ſubjects.

With regard to the epiſtolary ſtyle, an eaſy and genteel way of conveying our ſentiments, in the ſhorteſt and moſt expreſſive terms, is its greateſt excellence. Letters of buſineſs require no ornaments,

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ments, but ſhould inform in a plain and ſuccinct manner. Letters of compliment muſt have gaity, but no affectation. Letters of entertainment, perſuaſion, and condolence, may uſe ornaments; but an unaffected, eaſy, neat expreſſion, muſt ſhine through all.

CHAP. XCIV.

OF THE SUBLIME STYLE.

THIS is a ſpecies of eloquence quite different from the former, being great, rich, and grave. It employs whatever is moſt elevated, and is moſt capable of moving the affections; ſuch as noble thoughts, rich expreſſions, bold figures, and lively paſſions. This ſort of eloquence tranſports us beyond ourſelves, and excites admiration and applauſe. It thunders and lightens, and, like a rapid ſtream, carries away and bears down all before it with irreſiſtible force.

This ſtyle is adapted to all ſubjects that are great and uncommon. It is uſed in tragedy and epic poetry.

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There is a difference between the ſublime ſtyle, and what is called the ſublime, or ſublimity itſelf. Suppoſe I ſay, " The almighty Author of the univerſe, with a ſingle word created light." This is in the ſublime ſtyle; yet it is not ſublime, there being nothing extraordinary in it, which another perſon might not eaſily have expreſſed. But that of Moſes—" God ſaid let there be light and there was light;" ſuch an unuſual turn of expreſſion, which ſhews the obedience of the creature to the orders of its Creator, is truly ſublime.

Longinus, a celebrated writer upon this ſubject, mentions five ſources or principles of ſublimity; namely, *a lofty conception, a capacity of moving the paſſions, the proper management of figures, ſplendid expreſſion,* and *magnificent compoſition.*

The firſt, though rather a natural than an acquired qualification, he adviſes to keep up and cultivate with the utmoſt care. He ſuppoſes the mind of a ſublime genius to have nothing low or groveling in it, but to be full of great ideas and generous ſentiments; it being impoſſible for thoſe, who have been accuſtomed to a mean and ſervile way of thinking, to produce any thing ſo *ſublime*, as to convey pleaſure and admiration to poſterity. And hence it is, that ſuch ſayings as are really grand and

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and lofty have chiefly proceeded from thoſe, who have been remarkable for greatneſs of ſoul.

For inſtance; Alexander's anſwer to Parmenio is truly ſublime, and clearly expreſſes his elevated ſentiments and the greatneſs of his mind. Darius having offered Alexander his daughter and half his kingdom to purchaſe peace, "I would accept of ſuch terms," ſays Parmenio, "if I were Alexander." To which Alexander made this noble reply, "And ſo would I, if I were Parmenio."

Many examples of the ſublime may be found in the works of Homer, Virgil, Milton, Cicero and Demoſthenes, and other celebrated writers.

The holy ſcriptures abound with inſtances of inimitable ſublimity. With what awful pomp and majeſty is the Supreme Being repreſented in the eighteenth Pſalm. "He bowed the heavens and came down; and darkneſs was under his feet. He rode upon a cherub and did fly; yea, he did fly upon the wings of the wind."

The ſame vein of ſublimity is to be diſcerned in innumerable paſſages of the ſacred writings. I ſhall mention only one more from the book of Job, namely, the admirable deſcription of a war-horſe. "Haſt thou given the horſe ſtrength? Haſt thou cloathed his neck with thunder? Canſt thou make him

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him afraid as a graſshopper. The glory of his noſtrils is terrible. He paweth in the valley, and rejoiceth in his ſtrength; he goeth on to meet the armed men. He mocketh at fear and is not affrighted; neither turneth he back from the ſword. The quiver rattleth againſt him, the glittering ſpear and the ſhield. He ſwalloweth the ground with fierceneſs and rage; neither believeth he that it is the ſound of the trumpet. He ſaith among the trumpets, Ha, ha; and he ſmelleth the battle afar off, the thunder of the captains and the ſhouting."

I ſhall conclude this chapter with an inſtance of the *ſublime*, taken from a modern author, whoſe writings are deſervedly admired by all perſons of taſte and judgment; I mean Mr. Thomſon, who, in his poem called *Summer*, thus loftily deſcribes a ſtorm of thunder and lightning:

" 'Tis liſt'ning fear, and dumb amazement all:
" When to the ſtartled eye the ſudden glance
" Appears far ſouth, eruptive through the cloud;
" And following ſlower, in exploſion vaſt,
" The *Thunder* raiſes his tremendous voice,
" At firſt, heard ſolemn o'er the verge of heav'n,
" The tempeſt growls; but as it nearer comes,
" And rolls its awful burden on the wind,

" The

" The lightnings flaſh a larger curve and more
" The noiſe aſtounds; till over head a ſheet
" Of various flame diſcloſes wide, then ſhuts
" And opens wider, ſhuts and opens ſtill
" Expanſive, wrapping æther in a blaze.
" Follows the looſen'd, aggravated roar,
" Enlarging, deep'ning, mingling, peal on peal
" Cruſh'd horrible, convulſing heav'n and earth."

CHAP. XCV.

OF THE MEDIATE STYLE.

THE mediate, called alſo the intermediate, or equable ſtyle, is a ſpecies of eloquence between the plain and the ſublime, having neither the ſimplicity of the former, nor the force and energy of the latter.

It is ſometimes called the *embelliſhed* or *florid* ſtyle, becauſe it admits of all the ornaments of art, the beauty of figures, the ſplendor of metaphors, the luſtre of thoughts, the grace of digreſſions, the harmony of numbers and cadence.

Quintilian

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Quintilian compares it to a beautiful river, whose water is pure and clear, which flows gently, and is shaded on each side with verdant woods.

The mediate style is adapted to any subject of an indifferent nature, not very high, nor very low.

Cicero's orations comprehend all the species of eloquence, or various sorts of style; but perhaps the young scholar will more easily distinguish them in Virgil, whose *Eclogues* are an instance of the *plain* style, his *Georgics* of the *mediate*, and his *Æneid* of the noblest *sublimity*.

CHAP. XCVI.

OF THE ASIATIC AND LACONIC STYLE.

THE *Asiatic* style is very diffusive or prolix, abundance of words being used to express little matter. It was so called by the Greeks from the people of Asia, who affected such redundancies.

The *Laconic* style is quite the reverse of the former, being distinguished by its extraordinary conciseness,

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ciſeneſs, and by comprehending a great deal of matter under a few words.

It is called *Laconic* from Laconia, a country of Peloponneſus, of which the chief city was Lacedæmon or Sparta, whoſe inhabitants were remarkable for writing and ſpeaking in a pithy and conciſe manner.

The anſwer of Cleomenes, the Spartan general, to the ambaſſador of Samos, is an inſtance of this ſtyle. "As to what you have ſaid, the firſt part I do not remember; the middle I do not underſtand; the laſt I do not approve."

As an example of a ſtill more ſententious and expreſſive conciſeneſs, take the following letter:

The Lacedæmonians to Philip.

"Dionyſius is at Corinth."

At the time when this was written, Dionyſius, who for his tyranny had been driven out of Sicily, taught a *ſchool* at Corinth for *bread*. It was, therefore, a hint to Philip not to proceed, as he had begun, to imitate Dionyſius's conduct, leſt he ſhould be reduced to the ſame neceſſitous condition.

But to carry the matter ſtill farther, the Lacedæmonians ſometimes anſwered a long epiſtle by a ſingle word, as they did that of an enemy threatening

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ing to deſtroy them with fire and ſword. To this they only returned the poor monoſyllable *If*; that is, "Do if you can." This was a very ſhort, but very comprehenſive reply.

CHAP. XCVII.

ON THE FAULTS OF STYLE.

THE chief faults of ſtyle are, its being *tumid* or *ſwoln*, *frigid* and *puerile*, *dry* and *jejune*.

The *tumid* ſtyle abounds with ſwelling words, which give it a ſeeming greatneſs, but within are hollow and empty. Æſchylus puts ſuch into Boreas's mouth, on firing a houſe, viz.

"Whirlpools of flames tow'rds heav'n I vomit
"ſoon,
"Nor had I whiſtled yet my fav'rite tune."

Theſe words are magnificently terrible at firſt ſight; but if we bring *whirlpools of flames*, *vomiting towards heaven*, and the *whiſtler Boreas*, to the teſt of ſenſe and truth, what ſwoln contemptible bombaſt will theſe images appear!

The

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The *frigid* or *puerile* ſtyle, affects certain trifling ornaments, inſipid jeſts, remote and ſtrained alluſions, and redundant deſcriptions. Of this frigid puerility we have a remarkable inſtance in a reflection of Hegeſias recorded by Plutarch. Alexander the Great was born the ſame night that the temple of Diana at Epheſus was burnt to the ground. This accident Hegeſias attempted to turn to Alexander's honor, by ſaying, " It was no wonder the temple was burnt at that time, when the goddeſs, attending at ſo great a birth, was not in the way to extinguiſh the flame."

The following diſtinction is made by ſome, between the frigid and the puerile ſtyle. The frigid ſtyle renders a diſcourſe dry and inſipid, by a languor and flatneſs of expreſſion; and the puerile, or boyiſh, makes it tireſome and diſguſting, by a ſwelling loftineſs and affected amplification. Thoſe who uſe the frigid ſtyle, employ pompous expreſſions, when the ſubject requires plain ones; and thoſe who fall into the puerile, make uſe of low expreſſions, when the matter requires the moſt ſublime.

The *dry* or *jejune* ſtyle is that, which is deſtitute of ornament, force, and ſpirit.

A ſtyle alſo may be too *ſtiff*, or too *looſe*, *fluctuating*, and *unconnected*.

CHAP.

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CHAP. XCVIII.

OF CICERO AND DEMOSTHENES.

THESE two orators, though different in ſtyle, are both ſo ſuperlatively excellent in their kind, that it is not eaſy to determine which of them we ſhould chuſe to imitate. "The qualities," ſays Quintilian, "on which eloquence is founded, were alike in both; ſuch as the deſign, the order, the diviſion, the manner of preparing the audience, and, in a word, every thing that relates to *invention*. But, as to their ſtyle, there is a conſiderable difference. The one is more conciſe, the other more diffuſe; the one puſhes cloſer to his adverſary, the other allows him a larger ſpot to fight on. The one is always endeavouring to pierce him, as it were, with the vivacity of his ſtyle; the other often bears him down with the weight of his diſcourſe. Nothing can be retrenched from the one, nor added to the other. Demoſthenes has more care and ſtudy, Cicero more nature and genius."

Another judicious critic among the moderns, thus draws their characters. "Demoſthenes, from the impetuoſity of his temper, the ſtrength of his reaſon,

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reaſon, and the vehemence of his action, had more force than Cicero; as Cicero, by his ſoft and delicate deportment, by his gentle, piercing, and paſſionate emotions, and his many natural graces, was more affecting than Demoſthenes. The Grecian ſtruck the mind by the ſtrength of his expreſſion, and the ardor and violence of his declamation; the Roman reached the heart by certain charms, and imperceptible beauties, which were natural to him, and which were heightened by all the art of eloquence."

Upon the whole, it is beſt for young perſons, eſpecially thoſe deſigned for the bar, to take for their model the ſtrong and nervous ſtyle of Demoſthenes, ſoftened and adorned with that of Cicero; ſo that the ſeverity of the former may be qualified with the graces of the latter, and that the conciſeneſs and vivacity of the Grecian may correct the luxuriancy of the Roman orator.

CHAP.

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CHAP. XCIX.

OF METALS, WITH A SHORT ACCOUNT OF GOLD AND SILVER.

THERE are ſix kinds of metals, namely, gold, ſilver, copper, iron, lead, and tin; to which ſome add mercury as a ſeventh.

Gold is the heavieſt, pureſt, and moſt ductile of all metals. It is chiefly found in mines, though ſometimes gold-duſt is found in the ſand and mud of rivers, particularly in Guinea; and hence the name for our largeſt gold coin. There are gold mines in moſt countries in the world; in Europe, however, they are very ſparingly ſcattered. The mines of Chili and Peru in America are the richeſt; but very fine gold is found in ſome parts of the Eaſt-Indies.

Of all the properties of gold its ductility is the moſt ſurpriſing. A ſingle ounce of gold may be extended by the gold-beater's hammer to a ſurface of near 150 ſquare feet; and by the gold wire-drawers it will be extended to upwards of a thouſand, yet remain ſo entire, as that the leaſt flaw ſhall not be perceived, even by the help of the microſcope.

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Silver is a white rich metal, and, except gold, the fineſt and moſt ductile of any. There are ſilver mines in all parts of the world; but thoſe of Peru, and ſome other parts of America, particularly thoſe of Potoſi, are by far the richeſt, and yield the ore in as great plenty as when firſt diſcovered; with this only difference, that the veins, which were then almoſt on the ſurface of that famous mountain, are now ſunk ſo deep, that the workmen go down to them by a deſcent of almoſt four or five hundred ſteps.

CHAP. C.

OF COPPER AND IRON.

COPPER is a hard, dry, heavy, ductile metal, abounding in vitriol and ill-digeſted ſulphur, and found in moſt parts of Europe, but particularly in Sweden. It is dug up in large fragments of ore, which are firſt beaten ſmall, then waſhed to ſeparate the earthy parts from it, then melted and caſt into a kind of moulds to form large blocks, called ſalmons, or copper-cakes. This is the ordinary copper. There is a finer kind called roſe copper,

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and a ſtill finer, called virgin copper, which is ſometimes, but ſeldom, found pure in mines. It is the loweſt-priced metal uſed for coin.

Iron is a hard, dry, fuſible, and ductile metal, conſiſting of earth, ſalt, and ſulphur, but all impure, ill-mixed, and ill-digeſted, which renders it liable to ruſt. By often heating it in the fire, hammering it, and letting it cool of itſelf, it is ſoftened; by extinguiſhing it when hot in water, it is hardened.

There are ſeveral iron works in England; but the moſt conſiderable are thoſe in the foreſt of Dean, in Glouceſterſhire, where the ore is found in great abundance.

Though iron is the cheapeſt, it is certainly the moſt uſeful of all kinds of metal, and ſeems indiſpenſibly neceſſary to the carrying on every art and manufacture. Nay it appears to be a great mean of poliſhing and civilizing mankind; at leaſt much more ſo than the more precious metals. There have been inſtances of nations poſſeſſed of great quantities of gold, who yet remained in a ſtate of barbariſm. This, it is well known, was the caſe with the Americans, upon the firſt diſcovery of their country by Columbus. But there never was an inſtance of a nation, which underſtood the art of manufacturing iron, that did not attain, in time, to at leaſt ſome degree of civilization.

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CHAP. CI.

OF LEAD, TIN, AND MERCURY.

LEAD is a coarſe, heavy, ſoft metal, containing a little mercury, ſome ſulphur, and a great deal of earth. It is found in moſt countries; but is particularly plentiful in England. The various purpoſes, to which it may be applied, are pretty generally known.

Tin is a whitiſh metal, not ſo hard as ſilver, nor ſo ſoft as lead; but though not ſo ſoft, it is more eaſily melted. The ſtannaries of tin mines in Cornwall and Devonſhire furniſh the greateſt part of the tin, which is conſumed in all Europe. Six pounds of braſs, and fifteen pounds of lead, to an hundred pounds of tin, make the *compoſition* which is called *pewter*.

Mercury, or, as it is vulgarly called, quickſilver, is an imperfect metal, neither ductile, nor malleable, that is, neither capable of being drawn into length, nor ſpread into breadth by the hammer. It conſiſts entirely of a fluid matter, reſembling melted ſilver. It is found chiefly in Hungary, Spain, Italy, and Peru. The greateſt part of what is

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is uſed in England is brought from the mines of Friuli in Italy.

Mercury is the heavieſt of all metals except gold. It is alſo the moſt fluid of all bodies; that is, its parts cohere the leaſt to each other, and are the moſt eaſily ſeparated. It is extremely volatile, and may be turned into fume by a very gentle heat. It eaſily enters and cloſely adheres to gold, leſs eaſily to ſilver, with difficulty to copper, and to iron not at all.

CHAP. CII.

OF PRECIOUS STONES.

THE *diamond*, by the ancients called adamant, is the moſt valuable of all precious ſtones. Its goodneſs conſiſts in its colour, luſtre, and weight; and its defects are flaws, veins, ſpecks of red or black ſand, and a bluiſh, or yellowiſh caſt.

Diamonds are found only in the Eaſt-Indies, ſometimes in mines, and ſometimes in the ſand of rivers. They are the hardeſt of all gems, inſomuch that they can only be cut and ground by themſelves, and their own ſubſtance.

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The manner of preparing them is firſt to rub them hard againſt each other, and the duſt, which is thus rubbed off the ſtones, ſerves to grind and poliſh them. This is done by means of a mill, which turns a wheel of ſoft iron, ſprinkled over with diamond duſt, mixed with oil of olives. The ſame duſt, well ground, and diluted with water and vinegar, is uſed in the ſawing of diamonds; which is performed with an iron or braſs wire as fine as a hair.

The *ruby*, which is next in value and eſteem to the diamond, is of a crimſon colour, ſomewhat inclining to purple. The *garnet* is ſomewhat like it, and perhaps of the ſame ſpecies. The *hyacinth* is ſometimes of a deep red, and ſometimes of a yellow colour. The *amethyſt* is of a bright purple, and the *emerald* of a graſs green. The *ſapphire* is a ſky blue, and the *beryl*, a bluiſh green. The topaz or chryſolite is of a gold colour. Theſe are all tranſparent.

There are others that are opaque, or only half tranſparent; ſuch as the *cornelian*, which is the beſt, and of a pale red, and ſometimes bordering upon orange; the *onyx*, of a greyiſh caſt; the *turquoiſe*, ſomething between a blue and green; and the *lapis lazuli*, which is ſtudded with ſpots of gold on an azure ground.

CHAP.

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CHAP. CIII.

OF THE MAGNET OR LOADSTONE.

THIS wonderful ſtone is uſually found in iron mines, and is produced in moſt parts of the world. It is a heavy ſtone, ſomething reſembling the ore of iron, only cloſer and more ponderous.

It is endowed with ſome ſurpriſing qualities and powers. It attracts iron, which will adhere to it very ſtrongly; and this virtue it alſo communicates to the iron ſo attracted.

In every magnet there are two poles, one of which points northward, the other ſouthward; and if the magnet be divided into ever ſo many pieces, the two poles will be found in each piece.

It is this property which has rendered it ſo uſeful in improving the art of navigation; for this gave riſe to the mariner's compaſs, by means of which a ſailor can now conduct his ſhip to the Eaſt or Weſt-Indies, or even round the world, with as much eaſe, and as little danger, as he could formerly make a voyage to the coaſt of Norway or Holland.

The improvements in ſhip-building have kept pace with thoſe in navigation. To be convinced

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of this, one need only consider the infinite difference there is between a first-rate man of war, and an Indian canoe, which seems to be little better than a large butcher's trough; and yet this was probably the first form of all sailing vessels.

Even after men had learnt to build ships with more art, and of a larger size, they never ventured out of sight of land without fear and trembling, because they could not tell whither they were sailing east or west, south or north, or to what part of the world they were going. But now, in the darkest night, and in the midst of the boundless ocean, they know the course they are steering with as much certainty, as if it were in broad day, and within sight of land.

CHAP. CIV.

OF METEORS, AND THE DIFFERENT REGIONS OF AIR.

WHATEVER is engendered in the air which surrounds us, and which appears to be beyond the moon, is a meteor. This word signifies a body raised above the earth we inhabit.

Meteors

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Meteors are compoſed of vapours and exhalations.

Vapours are particles of water which mingle with the air.

Exhalations are particles of all the different terreſtrial bodies, which riſe into the air, ſuch as ſulphur, ſalts, bitumens, and other bodies of different natures, more or leſs combuſtible, ſolid or heavy.

The air is compoſed of a high, middle, and lower region. The air of the higher region is lighter and colder than that of the middle; and that of the middle ſtill finer than the lower. It is heavieſt near the ſurface the of earth.

The weight of a column of air, one foot ſquare, reaching from the ſurface of the earth to the top of the atmoſphere *, is 2,160 pounds; ſo that a man of middling ſize, the ſurface of whoſe body is about 14 ſquare feet, ſuſtains a preſſure of air of *thirty thouſand* and 240 pounds; a preſſure that would be inſupportable, and even fatal to him, were it not that it is equal on every part, and counterbalanced by the ſpring of the air within him, which is diffuſed through the whole body, and re-acts with equal force againſt the outward preſſure.

* About 45 miles.

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CHAP. CV.

SOME OF THE PROPERTIES OF AIR.

THE air may be *rarefied*, or made to occupy more ſpace. If you take a bladder, entirely empty, as you think, and tie its neck with a ſtring, and lay it before the fire, the heat will ſo rarefy the little air incloſed in it, as to make it extend the bladder to its utmoſt ſtretch, and, if continued, will make it break through with the report of a gun.

The air may be *condenſed* even to a ſixtieth part of the ſpace it before occupied.

It is alſo endued with an *elaſtic* power. The air compreſſed in the wind-gun, will, by its elaſtic force when diſcharged, drive a bullet through a board at the diſtance of ſeveral yards, in the ſame manner as if it were with gunpowder.

The air-pump is a curious machine for extracting the air from a large hollow glaſs, called a receiver, ſomewhat reſembling thoſe glaſſes that are uſed in gardens for covering tender plants. Into this glaſs if any animal is put, and the air drawn from it, it will almoſt immediately die; which ſhews that air is neceſſary to the life of animals.

They

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They do not all die in the very ſame ſpace of time, but ſooner or later, according to the ſtrength of the vital principle within them, or according as they have been accuſtomed to live with more or leſs air. Dogs, cats, rats, and mice, die in about half a minute. Inſects, ſuch as waſps, bees, hornets, and graſshoppers, appear dead in two minutes, and will continue in that ſtate a whole day and night, and afterwards revive upon the re-admiſſion of the air. Earwigs, beetles, and ſnails live a long time without air; and frogs will live longer without it than toads.

In the exhauſted receiver of an air-pump all bodies fall with the ſame rapidity. A feather falls as faſt as a guinea; that is, the lighteſt of all bodies falls as faſt as the heavieſt.

Common air is impregnated with a certain kind of vivifying ſpirit or quality, which is neceſſary to continue the lives of animals; and this, in a gallon of air, is ſufficient for one man during the ſpace of a minute, and no longer.

If a man deſcend into the deep in a diving-bell, he can only live as many minutes as the number of gallons of air contained in the bell amount to.

Even a burning candle conſumes the vivifying ſpirit of a gallon of air in a minute, as appears by the following experiment. Set a lighted candle

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upon the air-pump, or indeed upon any other place ſo ſmooth, that, when covered with a receiver, no air can enter. If the receiver holds a gallon, the candle will burn a minute; and then, after having gradually decayed from the firſt inſtant, it will go out; which ſhews that a conſtant ſupply of freſh air is as neceſſary to feed flame, as it is to ſupport the lives of animals.

The *vivifying* ſpirit of air may be deſtroyed in a variety of ways. Firſt, by paſſing through the lungs of animals, as is evident from what we have juſt now ſaid. Secondly, by paſſing through fire, particularly charcoal fire, or the flame of ſulphur. Hence ſmokey chimnies muſt be very unwholeſome, eſpecially if the rooms they are in be ſmall and cloſe. Thirdly, by being long pent up in any cloſe place, ſuch as the holds of ſhips, oil-ciſterns, or wine-cellars. The air in many of theſe is ſometimes ſo corrupted, as to prove inſtant death to any animal that comes into it.

This air is called *damp*; not only becauſe it is filled with humid or moiſt vapours, but becauſe it deadens fire, extinguiſhes flame, and deſtroys life. The dreadful effects of damps are ſufficiently known to thoſe who work in mines.

Air is abſolutely neceſſary for the *propagation* of ſound. If the clapper be made to ſtrike ever ſo hard

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hard againſt the bell, it will make no ſound at all, when the air is exhauſted out of the receiver.

The *elaſtic* air, which is contained in many bodies, and is kept in them by the weight of the atmoſphere, may be got out of them either by boiling, or by the air-pump; but the fixed air, which is by much the greater quantity, cannot be got out but by diſtillation, fermentation, or putrefaction.

This is a wiſe law of providence; for if fixt air did not come out of bodies without difficulty, and ſpend ſome time in extricating itſelf from them, it would tear them to pieces. Trees would be rent by the change of air from a fixt to an elaſtic ſtate, and animals would be burſt in pieces by the exploſion of air in their food.

Dr. Hales found, by experiment, that the air in apples is ſo much condenſed, that, if it were let out into the common air, it would fill a ſpace of 48 times as great as the bulk of the apples themſelves. If, therefore, the air were let looſe at once in theſe ſubſtances, they would tear every thing to pieces about them, with a force ſuperior to that of gunpowder. Hence, in eating apples, it is well that they part with the air by degrees, as they are chewed, and ferment in the ſtomach, otherwiſe an apple would be immediate death to him that eats it.

CHAP.

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CHAP. CVI.

OF THE WIND.

THE wind is nothing elſe but the air put violently in motion; and this is occaſioned chiefly by means of heat. For, when any part of the air is heated by the ſun, or otherwiſe, it will ſwell, and thereby affect the adjacent air; and ſo, by various degrees of heat in different places, there will ariſe various motions of the air.

When the air is much heated, it will aſcend towards the upper part of the atmoſphere, and the adjacent air will ruſh in to ſupply its place; and therefore there will be a ſtream or current of air, from all parts, towards the place where the heat is. And hence we ſee the reaſon, why the air ruſhes with ſuch force into a glaſs-houſe, a tile-kiln, or towards any place where a great fire is made; and alſo why ſmoke is carried up a chimney, and why the air ruſhes in at the key-hole of a door, or any ſmall chink, where there is a fire in the room. In general, we may take it for granted, that the air will preſs towards that part of the world, where it is moſt heated.

The

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The winds are divided into four principal ones, the *north*, *ſouth*, *eaſt*, and *weſt*, which receive their names from the four quarters of the world.

The *Frigid Zone* is the parent of the north wind, which is conſequently the coldeſt.

The *ſouth wind* is the warmeſt, and particularly in the ſummer, becauſe it comes from the *Torrid Zone*, over countries hotter than *ours*.

The *eaſt wind* is the dryeſt, becauſe it comes acroſs the vaſt continent of Aſia, which is but little watered by rivers or ſeas.

The *weſt wind* often blows us rain; becauſe, as it croſſes the great Atlantic ocean, it attracts a great quantity of vapours.

When theſe impetuous winds happen to meet, the greateſt inconveniencies follow. The ſulphureous exhalations from the ſouth, torrents of nitre from the north, and watery vapours from every ſide, become, indiſcriminately, blended together in one confuſed maſs.—From hence proceed tempeſts, thunder, rain, hail, and wirlwind.

The velocity of wind is at the rate of 50 or 60 miles an hour, in a great ſtorm; that of a common briſk wind is about 15 miles an hour; and ſome winds move not even one mile in that ſpace of time.

A per-

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A perſon, therefore, on horſeback, and even ſometimes on foot, may be ſaid to outſtrip the wind; for, if he moves faſter than the wind, which is very poſſible, he will have a wind in his face, though the motion of the air be really the contrary way.

The velocity of *ſound* is *thirteen* times as great as that of the ſtrongeſt wind.

CHAP. CVII.

ON THE TROPICAL WINDS.

THERE are certain winds, called tropical winds, which blow almoſt always from the ſame point of the compaſs. They are of three kinds. 1. The *general trade winds*, which extend to near thirty degrees of latitude on each ſide of the equator, in the Atlantic, Ethiopic, and Pacific oceans. On the north ſide of the equator, they blow from north-eaſt, on the ſouth ſide from the ſouth-eaſt, and near the equator from almoſt due eaſt. 2. The *monſoons*, or ſhifting trade winds, which blow ſix months in one direction, and the other ſix months in the oppoſite direction. Theſe are moſtly in the Indian, or Eaſtern ocean, and do not reach above two hundred leagues

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leagues from the land. Their change is at the vernal and autumnal equinoxes, and it is accompanied with terrible ſtorms of thunder, lightning, and rain. The monſoons are occaſioned by the *cold air* moving towards thoſe places, in which the air is rarefied by the heat of the ſun, in order to reſtore its equilibrium. 3. The *land and ſea breezes*, which are periodical winds, and blow from the land from night to about mid-day, and from the ſea from about noon to mid-night. Theſe winds do not extend above two or three leagues from the ſhore.

Beyond the latitude of thirty degrees, north and ſouth, the winds, as we daily perceive in Great Britain, are more variable, though it may be obſerved in general, that the tendency of the wind is from a colder region to that which is hotter.

CHAP. CVIII.

OF MISTS, CLOUDS, RAIN, DEW, SNOW, AND HAIL.

MISTS are thoſe collections of vapours, which chiefly riſe from fenny moiſt places, and become more viſible as the light of the day decreaſes.

Clouds

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Clouds are nothing elſe but a collection of moiſt particles, exhaled from the ſea and earth by the heat of the ſun, ſuſpended aloft in the air, and ſoaring on the wings of the wind.

The *height of the clouds* is ſuppoſed to be from about a quarter of a mile, to a mile. It is common for perſons, by climbing very high mountains, to get above the clouds, and ſee them ſwim beneath them.

The wonderful variety in the *colour* of the clouds, is owing to their particular ſituation with regard to the ſun, and the different reflections of his light. The different figures of the clouds reſult from their looſe and voluble texture, revolving into any form according to the different force of the winds.

Rain is nothing but thick clouds condenſed by the cold, which by their own weight fall upon the earth in ſmall quantities, called drops of water.

Thoſe ſmall clouds, ſometimes ſeen very high, and heaped upon one another, preſage rain very ſoon.

When the horizon, at the riſing or ſetting of the ſun, appears pale and yellowiſh, it is a ſign of the air being full of vapours, and threatens bad weather. But when it is of a light red at thoſe times, there are but few vapours in the air, and fine weather may be expected.

If

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If the cloud that melts is greatly rarefied, and its particles, in falling, meet an air moderately warm, theſe drops will be ſo ſmall, that they will not compoſe rain, but *rime* only.

Dew is produced from a quantity of particles of water extremely ſubtile, that float about in a calm and ſerene air in form of vapours, which, being condenſed by the coldneſs of the night, loſe by degrees their agitation, and many uniting together, fall in the morning in ſmall inviſible particles, like an extremley fine and delicate rain, which continues but a ſhort time, and is ſeen in drops of water like pearls upon leaves and herbs.

Snow is produced thus. In winter the regions of the air are intenſely cold, and the clouds finding this great cold on every ſide, quickly paſs from that ſtate of condenſation, which might reduce them to rain, into that which is able to reduce them to ice; ſo that in winter, as ſoon as the clouds begin to change into very fine drops of water, each of theſe ſmall particles freeze, and touching each other, form flakes of ſnow.

The ſmall intervals that the flakes leave between them, like ſo many pores, filled with a ſubtile air, are the cauſe of their *lightneſs.*

The ſnow is *white,* becauſe the ſmall particles of ice, which compoſe thoſe flakes, being hard, ſolid, tranſ-

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tranſparent, and differently arranged, reflect to us the light from all parts.

Hail is formed, when the parts of a cloud, beginning to fall, meet in their deſcent a very cold air, which freezes them; and theſe ſmall bits of ice are very near the figure and ſize that the drops of water would have been, had they fallen.

CHAP. CIX.

OF THE SEVEN COLOURS, AND THE RAINBOW.

THERE are no more than ſeven *primary*, or original colours, namely, *red*, *orange*, *yellow*, *green*, *blue*, *indigo*, and *violet*. All the other colours are compoſed of ſome of theſe primary ones.

The *difference* of colours is owing to the different refrangibility of the rays of light, which produce them. By the *refrangibility* of the rays of light, I mean their tendency to be turned out of a ſtraight line, or to be rendered crooked, in paſſing through any medium. The leaſt refrangible rays are thoſe that produce red; and the moſt refrangible, are thoſe that produce violet. All the intermediate rays produce

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produce the intermediate colours in the order above-mentioned.

If the *rays* of the ſun were not of different colours, there would be only *one colour* in the world; for the colours are in the rays of light, and not in the bodies that are dyed with them. That this opinion is well founded, we may be convinced by obſerving, that all bodies are of the ſame hue in the dark. Perhaps it may be ſaid, if it be abſolutely dark, we cannot ſee at all. True. But there ſure may be ſomething between an obſcure light and abſolute darkneſs, juſt ſufficient to ſhew us, that a man has got a great coat upon his back, though we cannot tell for certain, of what colour it is.

Black and *white* are not original colours. White is a mixture of all the *primary* colours; and black is a *privation* of them all, or no colour at all.

The *iris*, or *rainbow*, is a beautiful arch in the heavens, ornamented with all the *primary colours*. It is only ſeen when the ſpectator turns his back to the ſun, and when it rains on the oppoſite ſide.

Its beautiful colours ſtruck antiquity with amazement. To the philoſophers Pliny and Plutarch, it appeared as an object which we might admire, but could never explain.—The prieſts always preferred the wood, on which the rainbow had appeared to reſt, for their ſacrifices, vainly ſuppoſing that this wood

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wood had a perfume peculiarly agreeable to their deities.

According to Sir Iſaac Newton's theory, the rainbow is formed by the rays of the ſun being refracted by the drops of falling rain or miſt, and thence reflected to the ſpectator's eye.

All the colours of the rainbow may be produced by making the rays of the ſun paſs through a priſm.

Rainbows ſometimes appear by night in the moonſhine. The *lunar* rainbow is formed exactly in the ſame manner as the ſolar, by the bright beams of the moon ſtriking upon the boſom of a ſhower.

A lucid ring, called an *halo*, is ſometimes ſeen diffuſed round the moon. As this always appears in a rimy or froſty ſeaſon, we may ſuppoſe it occaſioned by the refraction of light on the frozen particles of the air.

CHAP.

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CHAP. CX.

OF THE KING, AND BRITISH CONSTITUTION.

THE ſupreme executive power of Great Britain and Ireland, is veſted by our conſtitution in a ſingle perſon, king or queen; for it is indifferent to which ſex the crown deſcends. The perſon intitled to it, whether male or female, is immediately intruſted with all the enſigns, rights, and prerogatives of ſovereign power.

The grand fundamental maxim, upon which the right of ſucceſſion to the throne of theſe kingdoms depends, is; "That the crown, by common law and conſtitutional cuſtom, is hereditary; and this in a manner peculiar to itſelf; but that the right of inheritance may from time to time be changed, or limited by act of parliament:" under which limitations, the crown ſtill continues hereditary.

That the young reader may enter more clearly into the deduction of the royal ſucceſſion, by its being transferred from the houſe of Tudor to that of Stuart, it may be proper to inform him, that on the death of queen Elizabeth, without iſſue, it became neceſſary to recur to the other iſſue of her grandfather Henry VII. by Elizabeth of York his

queen;

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queen; whoſe eldeſt daughter Margaret, having married James IV. king of Scotland, king James the Sixth of Scotland, and of England the Firſt, was the lineal deſcendant from that alliance. So that in his perſon, as clearly as in Henry VIII. centred all the claims of the different competitors, from the Norman invaſion downward; he being indiſputably the lineal heir of William I. And, what is ſtill more remarkable, in his perſon alſo centred the right of the Saxon monarchs, which had been ſuſpended from the Norman invaſion till his acceſſion. For Margaret, the ſiſter of Edgar Atheling, daughter of Edward the Outlaw, and granddaughter of king Edmund Ironſide, was the perſon in whom the hereditary right of the Saxon kings, ſuppoſing it not aboliſhed by the conqueſt, reſided. She married Malcolm III. king of Scotland; and Henry II. by a deſcent from Matilda their daughter, is generally called the reſtorer of the Saxon line. But it muſt be remembered, that Malcolm, by his Saxon queen, had ſons as well as daughters; and that the royal family of Scotland, from that time downward, were the offspring of Malcolm and Margaret. Of this royal family king James I. was the direct and lineal deſcendant; and therefore united in his perſon every poſſible claim by hereditary right to the Engliſh as well as Scottiſh throne,

being

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being the heir both of Egbert and William the Norman.

At the revolution in 1688, the convention of eſtates, or repreſentative body of the nation, declared that the miſconduct of king James II. amounted to an abdication of the government, and that the throne was thereby vacant.

In conſequence of this vacancy, and from a regard to the ancient line, the convention appointed the next proteſtant heirs of the blood royal of king Charles I. to fill the vacant throne, in the old order of ſucceſſion; with a temporary exception, or preference, to the perſon of William III.

On the impending failure of the proteſtant line of king Charles I. (whereby the throne might again have become vacant) the king and parliament extended the ſettlement of the crown to the proteſtant line of king James I. viz. to the princeſs Sophia of Hanover, and the heirs of her body, being proteſtants; and ſhe is now the common ſtock, from whom the heirs of the crown muſt deſcend.

The true ground and principle, upon which the revolution proceeded, was entirely a new caſe in politics, which had never before happened in our hiſtory; the abdication of the reigning monarch, and the vacancy of the throne thereupon. It was not a new limitation of the crown, by the king

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and both houſes of parliament. It was the act of the nation alone, upon a conviction that there was no king in being. For in a full aſſembly of the lords and commons, met in convention, upon the ſuppoſition of this vacancy, both houſes came to this reſolution; " That king James II. having endeavoured to ſubvert the conſtitution of the kingdom, by breaking the original contract between king and people; and by the advice of Jeſuits, and other wicked perſons, having violated the fundamental laws, and having withdrawn himſelf out of this kingdom, has abdicated the government, and that the throne is thereby vacant." Thus ended at once, by this ſudden and unexpected revolution, the old line of ſucceſſion, which from the Norman invaſion had laſted above 600 years, and from the union of the Saxon heptarchy in king Egbert, almoſt 900.

Though in ſome points the revolution was not ſo perfect as might have been wiſhed, yet from thence a new æra commenced, in which the bounds of prerogative and liberty have been better defined, the principles of government more thoroughly examined and underſtood, and the rights of the ſubject more explicitly guarded by legal proviſions, than in any other period of the Engliſh hiſtory. In particular, it is worthy obſervation, that the convention,

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vention, in this their judgment, avoided with great wiſdom the extremes, into which the theories of ſome zealous republicans would have led them. They held that this miſconduct of king James amounted to an *endeavour* to ſubvert the conſtitution, and not to an actual ſubverſion, or total diſſolution of the government. They, therefore, very prudently voted it to amount to no more, than an abdication of the government, and a conſequent vacancy of the throne. The government was allowed to ſubſiſt, though the executive magiſtrate was gone; and the kingly office to remain, though James was no longer king. Thus the conſtitution was kept entire; which, upon every ſound principle of government muſt otherwiſe have fallen to pieces, had ſo principal and conſtituent a part as the royal authority been aboliſhed, or even ſuſpended.

Hence it is eaſy to collect, that the title to the crown is at preſent hereditary, though not quite ſo abſolutely hereditary as formerly; and the common ſtock or anceſtor, from whom the deſcent muſt be derived, is alſo different. Formerly the common ſtock was king Egbert; then William the Conqueror; afterwards, in James the Firſt's time, the two common ſtocks united, and ſo continued till the vacancy in the throne in 1688. Now it is the

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princeſs Sophia, in whom the inheritance was veſted by the new king and parliament. Formerly the deſcent was abſolute, and the crown went to the next heir without any reſtriction. But now, upon the new ſettlement, the inheritance is conditional; being limited to ſuch deſcendants of the princeſs Sophia, as are proteſtant members of the church of England, and are married to none put proteſtants.

In this due medium, conſiſts the true conſtitutional notion of the right of ſucceſſion to the imperial crown of theſe kingdoms. Both the extremes, between which it ſteers, have been thought to be deſtructive of thoſe ends, for which ſocieties were formed, and are kept on foot. Where the magiſtrate, upon every ſucceſſion, is elected by the people, and may, by the expreſs proviſion of the law, be depoſed by his ſubjects, this may ſound like the perfection of liberty, and look well enough when delineated on paper; but in practice will be ever found extremely difficult. And, on the other hand, divine indefeaſible hereditary right, when coupled with the doctrine of unlimited paſſive obedience, is ſurely, of all conſtitutions, the moſt ſlaviſh and dreadful. But when ſuch an hereditary right, as our laws have created and veſted in the royal ſtock, is cloſely interwoven with thoſe liberties,

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ties, which are equally the inheritance of the ſubject, this union will form a conſtitution, in theory the moſt beautiful of any, in practice the moſt approved, and, in all probability, will prove in duration the moſt permanent.

This conſtitution it is the duty of every Britain to underſtand, to revere, and to defend.

CHAP. CXI.

ON THE POWER OF THE BRITISH MONARCH.

THE king of Great Britain, notwithſtanding the limitation of the power of the crown, is one of the greateſt monarchs reigning over a free people. His perſon is ſacred in the eye of the law, which makes it high treaſon ſo much as to imagine, or intend his death. Neither can he, in himſelf, be deemed guilty of any crime, the law taking no cogniſance of his actions, but only in the perſons of his miniſters, if they infringe the laws of the land.

As to his power, it is very great, though he has no right to extend his prerogative, beyond the

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ancient limits, or the boundaries preſcribed by the conſtitution. He can make no new laws, nor raiſe any new taxes, nor act in oppoſition to any of the laws. But he can make war or peace; ſend and receive ambaſſadors; make treaties of league and commerce; levy armies, and fit out fleets, for the defence of his kingdom, the annoyance of his enemies, or the ſuppreſſion of rebellions; grant commiſſions to his officers, both by ſea and land, or revoke them at pleaſure; ſummon the parliament to meet, and, when met, adjourn, prorogue, or diſſolve it; refuſe his aſſent to any bill, though it has paſſed both houſes; which, conſequently, by ſuch a refuſal, has no more force, than if it had never been moved. This prerogative, however, the kings of England have very ſeldom ventured to exerciſe.

He poſſeſſeth alſo the right of chuſing his own council; of nominating all the great officers of ſtate, of the houſhold, and of the church; and, in fine, is the fountain of honour, from whom all degrees of nobility and knighthood are derived. Such is the dignity and power of a king of Great Britain.

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CHAP. CXII.

OF THE PARLIAMENT.

PARLIAMENTS, or general councils, in ſome ſhape, are of as high antiquity as the Saxon government in this iſland, and coeval with the kingdom itſelf. Blackſtone, in his valuable Commentaries, ſays, "It is generally agreed, that, in the main, the conſtitution of parliament, as it now ſtands, was marked out ſo long ago as the 17th year of the reign of king John, A. D. 1215. In the *Great Charter*, granted by that prince, he promiſes to ſummon all archbiſhops, biſhops, abbots, lords, and greater barons, perſonally; and all other tenants, under the crown, by the ſheriff and bailiffs, to meet at a certain place, within forty days notice, to aſſeſs aids and ſupplies when neceſſary. And this conſtitution hath ſubſiſted, in fact, at leaſt from the year 1266, in the reign of Henry III. There are ſtill extant writs of that date to ſummon knights, citizens, and burgeſſes to parliament."

The parliament is aſſembled by the king's writs, and its ſitting muſt not be intermitted above three years. Its conſtituent parts are, the king, ſitting there in his royal political capacity, and the three

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eſtates of the realm; the lords ſpiritual, the lords temporal (who ſit together with the king in one houſe), and the commons, who ſit by themſelves in another. The king and theſe three eſtates, together, form the great corporation or body politic of the kingdom, of which the king is ſaid to be *caput, principium,* et *finis.* For, upon their coming together, the king meets them, either in perſon, or by repreſentation, without which there can be no beginning of a parliament; and he alone has the power of diſſolving them.

It is highly neceſſary for preſerving the balance of the conſtitution, that the executive power ſhould be a branch, though not the whole, of the legiſlature. The crown cannot begin of itſelf any alterations in the preſent eſtabliſhed law; but it may approve or diſapprove of the alterations ſuggeſted and conſented to by the two houſes. The legiſlative, therefore, cannot abridge the executive power of any rights, which it now has by law, without its own conſent. The law muſt perpetually ſtand, as it now is, unleſs all the powers will agree to alter it.

In this conſiſts the true excellence of the Engliſh government, that all the parts of it form a mutual check upon each other. In the legiſlature, the people are a check upon the nobility, and the nobility a check

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a check upon the people, by the mutual privilege of rejecting, what the other has reſolved; while the king is a check upon both. This preſerves the executive power from encroachments.

CHAP. CXIII.

OF THE HOUSE OF LORDS.

THE lords ſpiritual conſiſt of two archbiſhops, and twenty-four biſhops. The lords temporal conſiſt of all the peers of the realm; the biſhops not being, in ſtrictneſs, held to be ſuch, but merely lords of parliament. Some of the peers ſit by deſcent, as do all ancient peers; ſome by creation, as do all the new made ones: others, ſince the union with Scotland, by election, which is the caſe of the ſixteen peers, who repreſent the body of the Scottiſh nobility. The number of peers is indefinite, and may be increaſed at will by the power of the crown.

A body of nobility is more peculiarly neceſſary in our mixed conſtitution, in order to ſupport the rights both of the crown and of the people; by forming a barrier to withſtand the encroachments

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of both. It creates and preſerves that gradual ſcale of dignity, which proceeds from the peaſant to the prince; riſing like a pyramid from a broad foundation, and diminiſhing to a point as it riſes. The nobility therefore are the pillars, which are reared from among the people, more immediately to ſupport the throne; and if that falls, they muſt alſo be buried under its ruins. Accordingly, when Charles I. was put to death, the commons, having determined to extirpate monarchy, alſo voted the houſe of lords to be uſeleſs and dangerous.

CHAP. CXIV.

OF THE HOUSE OF COMMONS.

THE commons conſiſt of all ſuch men of any property in the kingdom, as have not ſeats in the houſe of lords; every one of whom has a voice in parliament, either perſonally, or by his repreſentatives.

This, however, muſt be underſtood with ſome limitation. Thoſe who are poſſeſſed of eſtates in land, though to the value of only *forty ſhillings* per annum,

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annum, have a right to vote for members of parliament; as have moſt of the members of corporations and boroughs. But there are very large trading towns and populous places, which ſend no members to parliament; and of thoſe towns which do ſend members, great numbers of the inhabitants have no votes. Many thouſand perſons of great perſonal property, have, therefore, no repreſentatives. Indeed, the inequality and defectiveneſs of the repreſentation, has been juſtly conſidered as one of the greateſt imperfections in the Engliſh conſtitution. The duration of parliaments, being extended to ſeven years, has been conſidered in the ſame light.

In a free ſtate, every man, who is ſuppoſed a free agent, ought to be, in ſome meaſure, his own governor; and therefore, a branch at leaſt of the legiſlative power ſhould reſide in the whole body of the people. In ſo large a ſtate as ours, it is very wiſely contrived, that the people ſhould do that by their repreſentatives, which it is impracticable to perform in perſon. The counties are therefore repreſented by knights, elected by the proprietors of lands. The cities and boroughs are repreſented by citizens and burgeſſes, choſen by the mercantile part, or ſupported trading intereſt of the nation.

The number of Engliſh repreſentatives is 513, and of Scotch 45; in all 558. And every mem-

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ber, though chosen by one particular district, when elected and returned, serves for the whole realm. For the end of his coming thither is not particular, but general; not merely to serve his constituents, but also the commonwealth, and to advise his majesty, as appears from the writ of summons.

The following oath, called the *bribery oath*, is administered to every person before they poll. "I ——— do swear (or being one of the people called Quakers, do solemnly affirm) I have not received or had, by myself, or any person whatsoever in trust for me, or for my use and benefit, directly or indirectly, any sum or sums of money, office, place or employment, gift or reward, or any promise or security for any money, office, or employment, or gift, in order to give my vote at this election; and that I have not before been polled at this election. So help me God."

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CHAP. CXV.

OF THE POWER OF PARLIAMENT.

THE power of parliament is ſo tranſcendent and abſolute, that it cannot be confined, either for cauſes or perſons, within any bounds. It hath ſovereign and uncontroulable authority in making, confirming, enlarging, reſtraining, abrogating, repealing, reviving, and expounding laws, concerning matters of all poſſible denominations, eccleſiaſtical or temporal, civil, military, maritime, or criminal. That abſolute deſpotic power, which muſt in all governments reſide ſomewhere, is here entruſted, by the Britiſh conſtitution. All miſchiefs and grievances, operations and remedies, that tranſcend the ordinary courſe of the laws, are within the reach of this extraordinary tribunal.

It can regulate or new model the ſucceſſion to the crown; as was done in the reign of Henry VIII and William III. It can alter the eſtabliſhed religion of the land; as was done in a variety of inſtances, in the reign of king Henry VIII. and his three children, Edward VI. Mary, and Elizabeth. It can change and create afreſh even the conſtitution

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tion of the kingdom, and of parliaments themſelves; as was done by the act of union, and the ſeveral ſtatutes for triennial and ſeptennial elections. It can, in ſhort, do every thing that is not naturally impoſſible; and therefore ſome have not ſcrupled to call its power by a figure rather bold, the *omnipotence of parliament.*

But then their power, however great, is given them in truſt, and therefore ought to be employed according to the rules of juſtice, and for the promotion of the general welfare of the people. And it is a matter moſt eſſential to the liberties of the kingdom, that ſuch members be delegated to this important truſt, as are moſt eminent for their probity, their fortitude, and their knowledge; for it was a known apophthegm of the great lord treaſurer Burleigh, "that England could never be ruined but by a parliament." And, as Sir Matthew Hale obſerves, "this being the higheſt and greateſt court, over which none other can have juriſdiction in the kingdom, if by any means a miſgovernment ſhould any way fall upon it, the ſubjects of this kingdom are left without all manner of legal remedy."

In order to prevent the miſchiefs that might ariſe, by placing this extenſive authority in hands that are either incapable, or elſe improper to manage it, it is provided, that no one ſhall ſit or vote in either houſe

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houſe of parliament, unleſs he be twenty-one years of age. To prevent innovations in religion and government, it is enacted, that no member ſhall vote or ſit in either houſe, till he hath, in the preſence of the houſe, taken the oaths of allegiance, ſupremacy, and abjuration. To prevent dangers that may ariſe to the kingdom from foreign attachments, connections or dependencies, it is enacted, that no alien, born out of the dominions of the crown of Great Britain, even though he be naturalized, ſhall be capable of being a member of either houſe of parliament.

CHAP. CXVI.

ON THE PRIVILEGES OF THE MEMBERS.

SOME of the moſt important privileges of the members of either houſe are, privilege of ſpeech, of perſon, of their domeſtics, and of their lands and goods. As to the firſt, privilege of ſpeech, it is declared by a ſtatute of William and Mary, as one of the liberties of the people, "that the freedom of ſpeech, and debates, and proceedings in parliament

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ment, ought not to be impeached or queſtioned in any court or place out of parliament."

This freedom of ſpeech is particularly demanded of the king in perſon, by the ſpeaker of the houſe of commons, at the opening of every new parliament.

To aſſault by violence a member of either houſe, or his menial ſervants, is a high contempt of parliament, and puniſhed with great ſeverity.

Till lately, all members were exempted from legal arreſts, and ſeizures by proceſs from the courts of law. No entry could be made on their lands; their goods could not be diſtrained or ſeized; nor could they be taken into cuſtody, without a breach of the privileges of parliament.

This exemption, however, from arreſts for lawful debts, was always conſidered by the public as a grievance. The lords and commons, therefore, generouſly relinquiſhed ther privilege by act of parliament, in 1770; and members of both houſes may now be ſued like other debtors.

The houſe of lords have a right to be attended by the judges of the courts of King's Bench and Common Pleas, and ſuch of the barons of the Exchequer as are of the degree of the coif, or have been made ſerjeants at law, as likewiſe by the maſters of the court of Chancery; for their advice in point of

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of law, and for the greater dignity of their proceedings.

The ſpeaker of the houſe of lords is generally the lord chancellor, or lord keeper of the great ſeal, which dignities are commonly veſted in the ſame perſon.

CHAP. CXVII.

PECULIAR RIGHTS OF THE HOUSE OF COMMONS.

THE houſe of commons may be properly ſtyled the grand inqueſt of Great Britain, impowered to enquire into all national grievances, in order to ſee them redreſſed.

The peculiar laws and cuſtoms of the houſe of commons relate principally to the raiſing of taxes, and the elections of members to ſerve in parliament.

With regard to taxes, it is the ancient indiſputable privilege and right of the houſe of commons, that all grants of ſubſidies, or parliamentary aids, begin in their houſe, and are firſt beſtowed by them; though their grants are not effectual to all intents

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intents and purpoſes, until they have the aſſent of the other two branches of the legiſlature.

The general reaſon given for this excluſive privilege of the houſe of commons is, that the ſupplies are raiſed from the body of the people, and therefore it is proper, that they alone ſhould have the right of taxing themſelves. And ſo reaſonably jealous are the commons of this privilege, that they will not ſuffer the other houſe to exert any power but that of rejecting. They will not permit the leaſt alteration or amendment to be made, by the lords, to the mode of taxing the people by a money-bill. Under this appellation are included all bills by which money is directed to be raiſed upon the ſubject, for any purpoſe, or in any ſhape whatſoever; either for the exigences of government, and collected from the kingdom in general, as the land-tax; or for private benefit, and collected in any particular diſtrict, as by turnpikes, pariſh-rates, and the like.

The method of making laws is much the ſame in both houſes. In each houſe, the act of the majority binds the whole. This majority is declared by votes openly and publicly given; not as at Venice, and many other ſenatorial aſſemblies, privately or by ballot.

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CHAP. CXVIII

OF PARLIAMENTARY BILLS.

TO bring a bill into the houſe of commons, if the relief ſought by it is of a private nature, it is firſt neceſſary to prefer a petition; which muſt be preſented by a member, and uſually ſets forth the grievance deſired to be remedied. This petition is referred to a committee of members, who examine the matter alledged, and accordingly report it to the houſe; and then leave is given to bring in the bill. In public matters, the bill is brought in upon a motion made to the houſe, without any petition. This is read a firſt time, and, at a convenient diſtance, a ſecond time; and after each reading, the ſpeaker opens to the houſe the ſubſtance of the bill, and puts the queſtion, whether it ſhall proceed any farther.

The introduction of the bill may be originally oppoſed, as the bill itſelf may, at either of the readings. If the oppoſition ſucceeds, the bill muſt be dropt for that ſeſſion; and it muſt alſo, if oppoſed with ſucceſs, in any of the ſubſequent ſtages.

After

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After the ſecond reading, it is committed, that is, referred to a committee, which is either ſelected by the houſe, in matters of ſmall importance; or elſe, if the bill is a matter of great, or national conſequence, the houſe reſolves itſelf into a committee of the whole houſe.

A committee of the whole houſe is compoſed of every member; and, to form it, the ſpeaker quits the chair (another member being appointed chairman), and may ſit and debate as a private member. In theſe committees, the bill is debated clauſe by clauſe. Amendments are made, the blanks are filled up, and ſometimes the bill is entirely new modelled.

After it has gone through the committee, the chairman reports it to the houſe, with ſuch amendments as the committee have made. The houſe then re-conſider the whole bill, and the queſtion is repeatedly put, upon every clauſe and amendment.

When the houſe have agreed, or diſagreed, reſpecting the amendments of the committee, and ſometimes added new amendments of their own, the bill is ordered to be engroſſed, or written in a ſtrong groſs hand, on a roll of parchment, or, if neceſſary, on ſeveral rolls ſewed together.

When this is finiſhed, it is read a third time and amendments are ſometimes then made to it; and,

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and, if a new clauſe be added, it is done by tacking a ſeparate piece of parchment to the bill, which is called *a rider*. The ſpeaker then again opens the contents; and, holding it up in his hands, puts the queſtion whether the bill ſhall paſs. If this be agreed to, the title to it is then ſettled.

After this, one of the members is directed to carry it to the lords, and deſire their concurrence; who, attended by ſeveral more, carries it to the bar of the houſe of peers, and there delivers it to their ſpeaker, who comes down from his woolſack to receive it. It there paſſes through the ſame forms, as in the other houſe; and if rejected, no more notice is taken, but it paſſes *ſub ſilentio*, to prevent unbecoming altercations.

But if it be agreed to, the lords ſend a meſſage by two maſters in chancery, that they have agreed to the ſame; and the bill remains with the lords, if they have made no amendment to it. But if any amendments are made, ſuch amendments are ſent down with the bill, to receive the concurrence of the commons. If the commons do not agree to the amendments, a conference uſually follows, between members deputed from each houſe, who, for the moſt part, ſettle and adjuſt the difference. But, if both houſes remain inflexible, the bill is dropped. If the commons agree to the amendments, the bill

is

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is ſent back to the lords by one of the members, with a meſſage to acquaint them therewith.

The ſame forms are obſerved, when the bill begins in the houſe of lords. But when an act of grace or pardon is paſſed, it is firſt ſigned by his majeſty, and then read once only in each of the houſes, without any new engroſſing or amendment. And when both houſes have done with any bill, it is always depoſited in the houſe of peers, to wait the royal aſſent; except in the caſe of a money-bill, which, after receiving the concurrence of the lords, is ſent back to the houſe of commons.

It may not be improper to obſerve, that both in the houſes, and in their committees, the ſlighteſt expreſſion, or moſt minute alteration, does not paſs, till the ſpeaker, or the chairman, puts the queſtion; which, in the houſe of commons, is anſwered by *aye* or *no*; and, in the houſe of peers, by *content*, or *not content*.

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CHAP. CXIX.

OF THE ROYAL ASSENT TO BILLS.

THE giving the royal aſſent to bills is a matter of great form. When the king is to paſs bills in perſon, he appears on his throne in the houſe of peers, in his royal robes, with the crown on his head, and attended by his great officers of ſtate, and heralds. A ſeat on the right hand of the throne, where the princes of Scotland, when peers of England, formerly ſat, is reſerved for the prince of Wales. The other princes of the blood ſit on the left hand of the king; and the chancellor, on a cloſe bench, removed a little backwards. The viſcounts and temporal barons, or lords, face the throne, on benches, or wool-packs, covered with red cloth or baize. The biſhops are ſeated on a bench, which runs along the houſe to the bar on the right hand of the throne. The dukes and earls ſit on the left.

The chancellor and judges, on ordinary days, ſit upon wool-packs between the barons and the throne. The common opinion is, that the houſe ſitting on wool is ſymbolical of wool being formerly the ſtaple commodity of the kingdom. Many of

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of the peers, on ſolemn occaſions, appear in their parliamentary robes. None of the commons have any robes, excepting the ſpeaker, who wears a long black ſilk gown; and when he appears before the king it is trimmed with gold.

The royal aſſent may be given two ways. 1. In perſon; when the king ſends for the houſe of commons to the houſe of peers. The ſpeaker carries up the money-bills in his hand; and, in delivering them, he addeſſes his majeſty in a ſolemn ſpeech, in which he ſeldom fails to extol the generoſity and loyalty of the commons, and to tell his majeſty how neceſſary it is to be frugal of the public money. It is upon this occaſion, that the commons of Great Britain appear in their higheſt luſtre.

The titles of bills that have paſſed both houſes are read; and the king's anſwer is declared by the clerk of the parliament in Norman French. If the king conſents to a public bill, the clerk uſually declares, *le roy le veut*, "the king wills it ſo to be;" if to a private bill, *ſoit fait comme il eſt deſiré*, "be it as it is deſired." If the king refuſes his aſſent, it is in the gentle language of *le roy s'aviſera*, "the king will adviſe upon it."

2. By a ſtatute of Henry VIII. the king may give his aſſent by letters patent, under his great ſeal, ſigned with his hand, and notified, in his abſence, to

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to both houſes aſſembled together in the high houſe, by commiſſioners conſiſting of certain peers, named in the letters. And, when the bill has received the royal aſſent in either of theſe ways, it is then, and not before, a ſtatute or act of parliament.

An act of parliament thus made, is the exerciſe of the higheſt authority, that this kingdom acknowledges upon earth. It has power to bind every ſubject in the land, and even the king himſelf. It cannot be altered, amended, diſpenſed with, ſuſpended, or repealed, but in the ſame forms, and by the ſame authority of parliament; for it is a maxim in law, that it requires the ſame ſtrength to diſſolve, as to create an obligation.

CHAP. CXX.

OF THE PRIVY-COUNCIL.

THE king of Great Britain, beſides his high court of parliament, has ſubordinate officers and miniſters to aſſiſt him, who are reſponſible for their advice and conduct. They are made by the king's nomination, without either patent or grant;

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and on taking the neceſſary oaths, they become immediately privy-counſellors, during the life of the king that chuſes them; but ſubject to removal at his direction.

The duty of a privy-counſellor appears from the oath of office, which conſiſts of ſeven articles: 1. To adviſe the king according to the beſt of his cunning and diſcretion. 2. To adviſe for the king's honour and the good of the public, without partiality through affection, love, need, doubt, or dread. 3. To keep the king's counſel ſecret. 4. To avoid corruption. 5. To help and ſtrengthen the execution of what ſhall be there reſolved. 6. To withſtand all perſons who would attempt the contrary. And laſtly, to obſerve, in general, all that a good and true counſellor ought to do for his ſovereign lord.

Among the privy-counſellors, the two ſecretaries of ſtate are more officially ſo than the others, as they are entruſted with the king's ſignet, and are ſuppoſed to adviſe him in acts of government, which may not be proper to be communicated even to a privy-counſellor; ſuch as giving orders for ſecret expeditions, correſpondence with ſpies, or other agents, ſecuring traitors, and the like.

The office of ſecretary of ſtate is at preſent divided into a ſouthern and a northern department. The

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The ſouthern contains France, Spain, Portugal, Italy, the Swiſs Cantons, Conſtantinople, and, in ſhort, all the ſtates in the ſouthern parts. The northern comprehends the different ſtates of Germany, Pruſſia, Poland, Ruſſia, Sweden, Denmark, Holland, Flanders, and the Hanſeatic towns.

The capital affairs of government, which were formerly intruſted with the ſecretaries of ſtate, are now tranſacted by a committee of the privy-council, commonly called a cabinet-council. This cabinet generally conſiſts of a ſelect number of miniſters and noblemen, according to the king's opinion of their integrity and abilities, or attachment to the views of the court. But, though its operations are powerful and extenſive, a cabinet-council is not eſſential to the conſtitution of England.

This obſervation naturally leads me to mention the perſon, who is ſo well known by the name of the *firſt miniſter*; a term unknown to the Engliſh conſtitution, though the office is, perhaps, neceſſary. The conſtitution points out the lord high chancellor as miniſter; but the affairs of his own court give him ſufficient employment. When the office of the firſt lord of the treaſury is united with that of chancellor of the exchequer, in the ſame perſon, he is conſidered as firſt miniſter. But though

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it is no office, yet there is a responsibility annexed to the situation, which renders it a post of difficulty and danger.

CHAP. CXXI.

OF THE GREAT OFFICERS OF THE CROWN.

I SHALL now take a short review of the nine great officers of the crown, who by their posts take place next to the princes of the royal family and the two primates.

The first is the *lord high steward* of England. This is an office very ancient, and formerly was hereditary, or at least for life. But now it is exercised only occasionally; that is, at a coronation, or when it is necessary to sit as judge on a peer or peeress, tried for a capital offence. In coronations, it is held, for that day only, by some high nobleman. In cases of trial, it is exercised generally by the lord chancellor, or lord keeper; whose commission, as high steward, ends with the trial, by breaking his white rod, the badge of his office.

The *lord high chancellor* presides in the court of chancery, to moderate the severities of the law, in all

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all cases where the property of the subject is concerned; and he is to determine according to the dictates of equity and reason. He is an officer of the greatest weight and power of any now subsisting in the kingdom, and is superior in precedency to every temporal lord.

The post of *lord high treasurer* has of late been vested in a commission, consisting of five persons, who are called lords of the treasury; but the first commissioner is supposed to possess the power of lord high treasurer. He has the management and charge of all the revenues of the crown kept in the Exchequer; as also the letting of the leases of all crown-lands, and the gift of all places belonging to the customs in the several ports of the kingdom. From this short view of his office, its importance may easily be understood. He has, in fact, the public finances in his hands, besides the disposal of so great a number of lucrative places, that a catalogue of them would fill many pages.

The *lord president of the council* was an officer formerly of great power, and has precedence next after the lord chancellor, and lord treasurer. His duty is to propose all the business transacted at the council-board, and to report to the king, when his majesty is not present, all its debates and proceedings.

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The office of *lord privy-seal* consists in his putting the king's seal to all charters, grants, and the like, which are signed by the king, in order to their passing the great seal.

The office of *lord great chamberlain* of England is hereditary to the duke of Ancaster's family. He attends the king's person, on his coronation, to dress him. He has likewise charge of the house of lords, during the sitting of parliament; and of fitting up Westminster-hall for coronations, or trials of peers.

The office of *lord high constable* has been disused, since the attainder and execution of Stafford duke of Buckingham, in the year 1521; but it is occasionally revived for a coronation.

The duke of Norfolk is hereditary *earl marshal* of England. He regulates all points of precedency, according to the archives kept in the herald's office, which is entirely within his jurisdiction. He directs all solemn processions, coronations, proclamations, general mournings, and the like. Before England became so commercial a country, as it has been for a hundred years past, this office required great abilities, learning, and knowledge of the English history, for its discharge. In time of war, he was judge of army-causes, and decided according to the principles of the civil law. If the cause did not admit

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admit of ſuch deciſion, it was left to a perſonal combat, which was attended with a great variety of ceremonies; the arrangement of which, even to the ſmalleſt trifle, fell within the marſhal's province.

The office of *lord high admiral* of England is now held by commiſſion, and is equal in importance to any of the preceding, eſpecially ſince the growth of the Britiſh naval power. The laſt lord high admiral was George prince of Denmark, and huſband to queen Anne. The Engliſh admiralty is a board of directions as well as execution, and is in its proceedings independent of the crown itſelf. All trials upon life and death, in maritime affairs, are appointed and held under a commiſſion immediately iſſuing from that board, and the members muſt ſign even the death warrants for execution. But it may be eaſily conceived, that, as they are removeable at pleaſure, they do nothing that can claſh with the prerogative of the crown, and conform themſelves to the directions they receive from his majeſty. The board of admiralty regulates the whole naval force of the realm, and names all their officers, or confirms them when named; ſo that its juriſdiction is very extenſive.

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CHAP. CXXII.

ON THE COURTS OF LAW.

THE *court of chancery*, which is the court of equity, is next in dignity to the high court of parliament, and is deſigned to relieve the ſubject againſt frauds, breaches of truſt, and other oppreſſions, and to mitigate the rigour of the law. The lord high chancellor ſits as ſole judge, and in his abſence, the maſter of the rolls.

The *King's Bench* is ſo called, from the kings of England ſometimes ſitting there in perſon, or becauſe all matters determinable by common law, between the king and his ſubjects are there tried, except ſuch affairs as properly belong to the court of exchequer. This court is likewiſe a kind of check upon all the inferior courts. Here preſide four judges, the firſt of whom is ſtyled lord chief juſtice of the king's bench, or, by way of eminence, lord chief juſtice of England, to expreſs the great extent of his juriſdiction over the kingdom. The other three judges are called juſtices, or judges of the king's bench.

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The court of *Common Pleas* takes cognizance of all civil actions depending between ſubject and ſubject. The firſt judge of this court is ſtyled lord chief juſtice of the Common Pleas; and beſides him, there are three other judges. None but ſerjeants at law are allowed to plead here.

The *court of Exchequer* was inſtituted for managing the revenues of the crown, and has a power of judging both according to law and according to equity. In the proceedings according to law, the lord chief baron of the Exchequer, and three other barons preſide as judges. They are ſtyled barons, becauſe formerly none, but barons of the realm, were allowed to be judges of this court. When this court proceeds according to equity, then the lord treaſurer and the chancellor of the Exchequer preſide, aſſiſted by the other barons. All matters touching the king's treaſury, revenue, cuſtoms, and fines, are here tried and determined.

Beſides theſe, there are courts of conſcience ſettled in many parts of England, for the relief of the poor, in the recovery of payment of ſmall debts, not exceeding *forty ſhillings*.

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CHAP. CXXIII.

OF THE SHERIFFS, AND OTHER OFFICERS.

FOR putting the laws effectually in execution, a high-ſheriff is annually appointed for every county by the king, whoſe office is both miniſterial and judicial. He executes the king's mandate, and all writs directed to him out of the king's court of juſtice. He impannels juries, brings cauſes and malefactors to trial, and ſees ſentence, both in civil and criminal affairs executed. He attends the judges at the aſſizes, and guards them all the time they are in his county. He likewiſe decides the elections of knights of the ſhire, and judges of the qualifications of voters.

As his office is judicial, he keeps a court, called the county-court, to hear and determine all civil cauſes in the county, under forty ſhillings. As the keeper of the king's peace, both by common law and ſpecial commiſſion, he is the firſt man in the county, and ſuperior in rank to any nobleman in it, during his office.

The next officer to the ſheriff is the *juſtice of peace*, ſeveral of whom are commiſſioned for each county. To them is intruſted the power of putting

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ting great part of the ſtatute law in execution, with regard to the highways, the poor, vagrants, treaſons, felonies, riots, the preſervation of the game, and the like. They examine, and commit to priſon, all who break or diſturb the peace, and diſquiet the king's ſubjects. The juſtice of peace ought to be a perſon of great good ſenſe and integrity, and to have ſome knowledge of the law. As much power is lodged in his hands, and as nothing is ſo intoxicating, without theſe qualifications, he will be apt to make miſtakes, and to ſtep beyond his authority.

Each county has two *coroners*, who are to enquire, by a jury of neighbours, how, and by whom, any perſon came by a violent death, and to enter it on record as a plea of the crown. Another branch of his office is to enquire concerning ſhipwreck, and to certify whether wreck or not, and who is in poſſeſſion of the goods.

A *conſtable* is a very ancient and reſpectable officer of the peace, under the Engliſh conſtitution. His buſineſs is to keep the peace, in all caſes of quarrels and riots. He can impriſon offenders till they are brought before a juſtice of peace; and it is his duty to execute, within his diſtrict, every warrant that is directed to him from that magiſtrate, or a bench of juſtices.

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CHAP. CXXIV.

OF CITIES AND BOROUGHS.

THE civil government of *cities* is a kind of ſmall independent policy of itſelf; for every city hath, by charter from the king, a juriſdiction within itſelf, to judge in all matters civil and criminal; with this reſtraint only, that all civil cauſes may be removed from their courts to the higher courts at Weſtminſter; and all offences that are capital, are committed to the judge of the aſſize. The government of cities differs according to their different charters, immunities, and conſtitutions. They are conſtituted with a mayor, aldermen and burgeſſes, who, together, make the corporation of the city, and hold a court of judicature, where the mayor preſides as judge. Some cities are counties and chuſe their own ſheriffs; and all of them have a power of making bye-laws for their own government. Some have thought the government of cities, by mayor, aldermen, and common-council, is an epitome of the Engliſh government, by king, lords, and commons.

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The government of incorporated *boroughs* is much after the ſame manner. In ſome there is a mayor, and in others two bailiffs; all which, during their mayoralty or magiſtracy, are juſtices of the peace within their liberties, and conſequently eſquires.

The cinque-ports are five havens, (formerly eſteemed moſt important ones), which lie on the eaſt part of England, towards France, as Dover, Sandwich, Romney, Haſtings, and Hythe, to which Winchelſea and Rye have been ſince added, with ſimilar franchiſes in many reſpects. Theſe cinque-ports were endowed with particular privileges by our ancient kings, upon condition that they ſhould provide a certain number of ſhips, at their own charge, to ſerve in the wars for forty days, as often as they were wanted.

CHAP. CXXV.

OF JURIES.

THERE neither is, nor ever was, any conſtitution provided with ſo many fences, as that of England is, for the ſecurity of perſonal liberty. Every man impriſoned has a right to bring a writ, before

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before a judge at Weſtminſter-hall, called his *Habeas Corpus*. If that judge, after conſidering the cauſe of commitment, ſhall find that the offence is bailable, the party is immediately admitted to bail, till he is condemned or acquitted in a proper court of juſtice.

The rights of individuals are ſo attentively conſidered, that the ſubject may, without the leaſt danger, ſue his ſovereign, or thoſe who act in his name, and under his authority. He may do this in open court, where the king may be caſt, and be obliged to pay damages to his ſubject.

If a man is charged with a capital offence, he muſt not undergo the ignominy of being tried for his life, till the evidences of his guilt are laid before the grand jury of the town or county, in which the fact is alledged to be committed, and not without twelve of them agreeing to a bill of indictment againſt him. If they do this, he is to ſtand a ſecond trial before twelve other men, whoſe opinion is definitive.

In ſome caſes, the priſoner (who is always ſuppoſed innocent till there be ſufficient proof of his guilt) is allowed a copy of his indictment, in order to help him to make his defence. He is alſo furniſhed with his pannel, or liſt of the jury, who are his true and proper judges, that he may learn their characters,

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characters, and discover whether they want abilities, or whether they are prejudiced against him. He may in open court peremptorily object to twenty of the number, and to as many more, as he can give reasons for their not being admitted as his judges; till at last twelve unexceptionable men, the neighbours of the party accused, or living near the place where the supposed fact was committed, are approved of, who take the following oath, "*That they shall well and truly try, and true deliverance make, between the king and the prisoner, whom they shall have in charge, according to the evidence.*" By challenging the jury, the prisoner prevents all possibility of bribery, or the influence of any superior power. By their living near the place, where the fact was committed, they are supposed to be men who knew the prisoner's course of life, and the credit of the evidence.

These are the judges, from whose sentence the prisoner is to expect life or death. Upon their integrity and understanding the lives of all, who are brought into danger, ultimately depend; and from their judgment there lies no appeal. They must, therefore, be all of one mind. After they have fully heard the evidence, they are confined without meat, drink, or candle, till they are unanimous in acquitting or condemning the prisoner.

CHAP.

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CHAP. CXXVI.

ON THE TRIAL OF MALEFACTORS.

THE court being met, and the priſoner called to the bar, the clerk commands him to hold up his hand, then charges him with the crime of which he is accuſed, and aſks him whether he is *guilty* or *not guilty*. If the priſoner anſwer *guilty*, the trial is at an end. But if he anſwer *not guilty*, the court proceeds on the trial, even though he may before have confeſſed the fact; for the law of England takes no notice of ſuch confeſſion. Unleſs the witneſſes, who are upon oath, prove him guilty of the crime, the jury muſt acquit him; for they are directed to bring in their verdict, according to the evidence given in court.

When the witneſſes have given in their evidence, and the priſoner has, by himſelf or his counſel, croſs-examined them, the judge recites to the jury the ſubſtance of the evidence given againſt the priſoner, and bids them diſcharge their conſcience. If the matter be very clear, they commonly give their verdict without going out of the court; and the foreman, for himſelf and the reſt, declares the perſon *guilty* or *not guilty*, as it may happen to be.

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But if any doubt arises among the jury, and the matter requires debate, they all withdraw into a room, with a copy of the indictment, where they are locked up till they unanimously agree upon the verdict; and if any one of the jury should die during this their confinement, the prisoner is acquitted.

When the jury have agreed on the verdict, they inform the court of it by an officer who waits without, and the prisoner is again brought to the bar to hear his verdict. This is unalterable, except in some doubtful cases, when the verdict is brought in *special*, and is therefore to be determined by the twelve judges of England.

If the prisoner be found guilty, he is then asked, what reason he can give, why sentence of death should not be passed upon him? There is now properly no benefit of clergy. It is changed to transportation or burning in the hand. Upon a capital conviction, the sentence of death, after a summary account of the trial, is pronounced on the prisoner, in these words: "The law is, that thou shalt return to the place from whence thou camest, and from thence be carried to the place of execution, where thou shalt be hanged by the neck, till thy body be dead, and the Lord have mercy on thy soul."

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ſoul." The ſheriff is then charged with the execution.

All the priſoners found *not guilty* by the jury, are immediately acquitted and diſcharged, and in ſome caſes obtain a copy of their indictment from the court, to proceed at law againſt their proſecutors.

CHAP. CXXVII.

OF PUNISHMENTS.

THOUGH the laws of England be eſteemed more merciful, with reſpect to offenders, than thoſe which at preſent ſubſiſt in any other part of the known world; yet the puniſhment of ſuch as, on their trial, refuſed to plead *guilty* or *not guilty*, was formerly very cruel. The priſoner was laid upon his back, naked, on the bare floor. His arms and legs were ſtretched out with cords, and a conſiderable weight of iron was laid upon his breaſt. He was to be allowed only three morſels of barley bread the firſt day, and the next, nothing but three draughts of ſuch foul water as was neareſt to

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to the prifon door. This was to be alternately his diet, till he expired. It was ſeldom neceſſary, however, to inflict this puniſhment; and the cruel proceſs is now aboliſhed. By a late act of parliament, the priſoner's refuſal to plead is to be conſidered as a conviction, and he is to ſuffer the ſame puniſhment, as if he had been tried, and found guilty.

The law of England includes all capital crimes under *high treaſon*, *petty treaſon*, and *felony*. The firſt conſiſts in plotting, conſpiring, or riſing up in arms againſt the ſovereign, or in counterfeiting the coin. The traitor is puniſhed in the following manner. After being hanged on a gallows for ſome minutes, the body is cut down alive, the heart is taken out and expoſed for ſome minutes, and the entrails are burnt. The head is then cut off, and the body quartered; after which, the head is uſually fixed on ſome conſpicuous place. All the criminal's lands and goods are forfeited; his wife loſes her dowry, and the children both their eſtates and nobility.

But though coining of money is adjudged high treaſon, the criminal is only hanged.

Though the ſentence paſſed upon all traitors is the ſame, yet with reſpect to perſons of quality, the puniſhment is generally altered to beheading.

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A ſcaffold is erected for that purpoſe, on which the criminal places his head upon a block, and the executioner ſtrikes it off with an axe.

The puniſhment for *miſpriſion* of high treaſon, that is, for neglecting or concealing it, is impriſonment for life, the forfeiture of all the offender's goods, and the profits ariſing from his lands.

Petty treaſon is when a child kills his father, a wife her huſband, a clergyman his biſhop, or a ſervant his maſter or miſtreſs. This crime is puniſhed by hanging. Women guilty both of this crime and of high-treaſon, are ſentenced to be burnt alive; but inſtead of ſuffering the full rigour of the law, they are ſtrangled at the ſtake before the fire takes hold of them.

Felony includes murders, robberies, forging notes, bonds, deeds, and the like. Theſe are all puniſhed by hanging; and murderers are executed within twenty-four hours after ſentence is pronounced, and then delivered to the ſurgeons in order to be publicly diſſected. As Sunday, however, is not reckoned a day, they are generally tried on Saturday, ſo that they obtain a reſpite till Monday. Perſons guilty of robbery, when there are ſome alleviating circumſtances, are either tranſported, or condemned to hard labour in works of public utility,

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the river Thames, &c. for a certain number of years.

Manſlaughter is the unlawful killing of a perſon without premeditated malice, but with a preſent intent to kill; as when two, who formerly meant no harm to each other, quarrel, and the one kills the other. In this caſe, the criminal is allowed the benefit of his clergy for the firſt time, and only burnt in the hand.

Chance-medley is the accidental killing of a man without an evil intent, for which the offender is alſo to be burnt in the hand, unleſs the offender was doing an unlawful act; which laſt circumſtance makes the puniſhment death.

Shoplifting and receiving goods knowing them to be ſtolen, are puniſhed with hard labour for a number of years, or burning in the hand.

Perjury is puniſhed with the pillory and impriſonment. Thoſe who keep diſorderly houſes are liable to the ſame puniſhment.

Petty-larceny, or ſmall theft, under the value of twelve-pence, is puniſhed by whipping.

Libelling, uſing falſe weights and meaſures, and foreſtalling the markets, are commonly puniſhed by ſtanding on the pillory.

For *ſtriking*, ſo as to *draw blood* in the king's court, the criminal is puniſhed with loſing his right-hand.

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For *ſtriking* in *Weſtminſter-hall*, while the courts of juſtice are ſitting, the puniſhment is impriſonment for life, and forfeiture of all the offender's eſtate.

Drunkards, vagabonds, and looſe, idle, diſorderly perſons, are puniſhed by being ſet in the ſtocks, or by paying a fine.

CHAP. CXXVIII.

OF EARTHQUAKES AND VOLCANOS.

AN *earthquake* is a ſudden motion, cauſed by the inflammation of ſome ſulphureous and bituminous exhalations, contained in the caverns of the earth, not far from its ſurface. In the ſouthern countries, earthquakes are very frequent.

An artificial earthquake may be made thus. Take ten or fifteen pounds of ſulphur, and as much of the filings of iron, and knead them with common water into the conſiſtency of a paſte. This being buried in the ground, will, in eight or ten hours time, burſt out in flames, and cauſe the earth to tremble all round, to a conſiderable diſtance.

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There are many ſubterraneous places, from which iſſue torrents of ſmoke and of flames, rivers of melted metals, and clouds of aſhes and ſtones. They are called *volcanos*. The moſt famous are thoſe of mount *Etna* in Sicily, *Veſuvius* in Naples, and *Ecla* in Iceland.

In an eruption from the ſecond of theſe, the two cities of Pompeii and Herculaneum were buried by the lava, and lay concealed in that ſtate for ſeveral ages, till they were lately diſcovered. Pliny the elder, the famous naturaliſt, periſhed on the occaſion. Pliny the younger, author of the epiſtles that go by his name, has given us an account of this cataſtrophe, in one of his letters.

The bowels of theſe burning mountains contain ſulphur, bitumen, and other inflammable matter, the effects of which are more dreadful than thoſe of thunder or of gunpowder, and they have in all ages aſtoniſhed mankind, and deſolated the earth.

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CHAP. CXXIX.

OF THE AURORA BOREALIS.

THE *aurora borealis* is that ſhining light, which is often ſeen by night in the heavens, and which the vulgar call northern lights, or ſtreamers.

This phænomenon may be the reſult of certain nitrous and ſulphureous vapours, thinly ſpread through the atmoſphere above the clouds, where they ferment, and taking fire, the exploſion of one portion kindles the next, and the flaſhes ſucceed one another, till all the vapour is ſet on fire, the ſtreams whereof ſeem to converge towards the zenith of the ſpectator, or that point of the heavens, which is immediately over his head.

The *northern lights* were not much ſeen in England, till the month of March 1716. Since that time, however, they have been, and ſtill continue to be, very frequent.

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CHAP. CXXX.

OF THE TIDES.

AS rivers flow and ſwell, ſo alſo does the ſea. Like them it has its currents, which agitate its waters, and preſerve them from putrefaction. That regular motion of the ſea, according to which it ebbs and flows twice in twenty-four hours, is called its *tides*.

In its flux, the ſea generally riſes for ſix hours, when it remains, as it were, ſuſpended, and in equilibrio, for about twelve minutes. At that time it is called *high water*.

In its reflux the ſea falls for ſix hours, when it remains, as it were, in a like manner, ſuſpended, and in equilibrio, for about twelve minutes. At that time it is called *low water*.

We are told that Ariſtotle, deſpairing to diſcover the true cauſe of theſe wonderful appearances, had the folly, in ſpite of his philoſophy, to throw himſelf headlong into the ſea.

The *tides* are occaſioned by the *attraction* of the *moon*. This doctrine remained in obſcurity, till the immortal Sir Iſaac Newton explained it by his

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great principle of gravity or attraction. For having demonſtrated that there is a principle in all bodies, within the ſolar ſyſtem, by which they mutually draw, or attract one another, in proportion to their diſtance; it follows, that thoſe parts of the ſea, which are immediately below the moon, muſt be drawn towards it, and conſequently, wherever the moon is nearly vertical, the ſea will be raiſed, which occaſions the flowing of the tide there.

A ſimilar reaſon occaſions the flowing of the tide in thoſe places, where the moon is in the nadir, and which muſt be diametrically oppoſite to the former. For, in the hemiſphere fartheſt from the moon, the parts in the nadir being leſs attracted by her than the other parts which are nearer to her, gravitate leſs towards the earth's centre, and conſequently muſt be higher than the reſt.

Thoſe parts of the earth, on the contrary, where the moon appears on the horizon, or ninety degrees diſtant from the zenith and nadir, will have low water. For, as the waters in the zenith and nadir riſe at the ſame time, the waters in their neighbourhood will preſs towards thoſe places, to maintain the equilibrium. To ſupply the places of theſe, others will move the ſame way, and ſo on to the places ninety degrees diſtant from the zenith and nadir, where the water will be loweſt.

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By combining this doctrine with the diurnal motion of the earth, already explained, we ſhall be ſenſible of the reaſon why the tides ebb and flow, twice in twenty-four hours, in every place on the globe.

The tides are higher than ordinary twice every month, that is, about the times of new and full moon, and are called *ſpring tides*. For, at theſe times, the actions of both the ſun and the moon are united, and draw in the ſame ſtraight line, and conſequently the ſea muſt be more elevated. At the conjunction, or when the ſun and moon are on the ſame ſide of the earth, they both conſpire to raiſe the waters in the zenith, and conſequently in the nadir; and at the oppoſition, or when the earth is between the ſun and moon, while one occaſions high water in the zenith and nadir, the other does the ſame.

The tides are leſs than ordinary twice every month, about the firſt and laſt quarters of the moon, and are called *neap tides*. In theſe quarters, the ſun raiſes the waters where the moon depreſſes them, and depreſſes where the moon raiſes them; ſo that the tides are only occaſioned by the difference by which the action of the moon, which is neareſt us, prevails over that of the ſun.

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These things would happen uniformly, were the whole surface of the earth covered with water; but since there is a multitude of islands and continents, which interrupt the natural course of the water, a variety of appearances are to be met with in different places, which cannot be explained, without regarding the situation of shores, shoals, and other objects, which have a share in producing them.

There are frequently streams or currents in the ocean, which set ships a great way beyond their intended course. There is a current between Florida and the Bahama Islands, which always runs from north to south. A current runs constantly from the Atlantic, through the straits of Gibraltar, into the Mediterranean. A current sets out of the Baltic sea, through the sound or strait between Sweden and Denmark, into the British channel; so that there are no tides in the Baltic.

About small islands and head-lands in the middle of the ocean, the tides rise very little; but in some bays, and about the mouths of rivers, they rise from twelve to fifty feet.

Perhaps it may be said, that, as a current constantly runs from the Atlantic into the Mediterranean, the waters of the sea ought to increase. By no means. The water extracted from it in vapours, is more than sufficient to counterbalance the influx.

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influx. It has been found by calculation, that in a ſummer's day, there may be raiſed in vapours, from the Mediterranean, 5280 millions of tuns of water. Yet this ſea does not receive, from all its nine great rivers, above 1827 millions of tuns per day, which is but one third of what is exhauſted in vapours; ſo that, were it not for the influx from the Atlantic, the Mediterranean would ſoon be rendered dry.

The tides flow from *eaſt* to *weſt*, for they muſt neceſſarily follow the moon's motion, which is from eaſt to weſt.

The courſe of the tides, however, is ſometimes *interrupted* by continents, and other large tracts of land. The tide, for inſtance, in the Indian ocean, being ſtopped by the eaſtern coaſt of Africa, muſt neceſſarily flow ſouth, towards the Cape of Good Hope, which having paſſed, it then runs northward along the northern coaſt of Africa, and that of Spain, Portugal, and France, till it enters the Engliſh channel; there meeting the tide from the German ocean, running a contrary way, it is neceſſarily ſtopped, and produces a very great ſwell of water.

Theſe *two tides* thus flowing in oppoſite directions, and meeting a little irregularly, have ſometimes occaſioned *two tides*, the one immediately

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after the other, in the river *Thames*, which, though proceeding from a natural cauſe, and conſequently very eaſy to be explained, has been looked upon as a prodigy.

As to the tide of rivers, it muſt always flow in a direction quite the reverſe of their natural ſtream; for the waters of the ſea being higher, they muſt neceſſarily flow into them, and make their waters flow back, or regurgitate. The tide of the Thames, and of all the other rivers on the eaſtern coaſt of England, muſt flow weſtward. The tide of the Severn, and of all the other rivers on the weſtern coaſt of England, muſt run eaſtward; and ſo of the reſt.

CHAP. CXXXI.

ON THE SALTNESS OF THE SEA.

SEA-WATER is ſalt, while that of rivers is mild, freſh, ſweet, and fit for human purpoſes. Some think that this ſaltneſs ariſes from great beds of ſalt lying at the bottom of the ſea. But others more rationally ſuppoſe it is owing to the following cauſe.

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cauſe. Salt is one of the original principles of nature, and is mixed, in greater or leſs quantities, with moſt other bodies. Now all rivers run into the ſea, and carry ſome ſalt with them: but no rivers run out of it, nor is any water taken from it, but either by exhalation or evaporation. But chymiſts have demonſtrably proved, that no ſalt can aſcend in either of theſe ways; and conſequently, that all the ſalt carried into the ſea, by the immenſe number of rivers that run into it, remains behind, and occaſions its ſaltneſs.

That no ſalt aſcends from the ſea, either by exhalation or evaporation, is evident from this, that rain-water, which falls from the clouds, and was originally exhaled from the ſea, is, of all kinds of water, the ſweeteſt, pureſt, and lighteſt, and is made the *ſtandard* by which philoſophers judge of all other waters.

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CHAP. CXXXII.

ON ELECTRICITY, AND THUNDER AND LIGHTNING.

THE word *electricity* is derived from the Greek word ηλεκτρον, ſignifying amber, which was the firſt ſubſtance that was obſerved to have the property of attracting ſtraws, and other light bodies; for this was the ſimple origin of a ſcience that is now arrived at very great perfection.

The *electrical matter* is a ſubtle fire, which pervades all nature, and produces the moſt ſurpriſing effects.

Thunder and *lightning* are undoubtedly owing to electricity. Dr. Franklin has proved by a variety of experiments, that the lightning of electricity, and the lightning that flaſhes from the clouds, in a thunder ſtorm, are exactly of the ſame kind, and operate in the ſame manner.

Electricians have the art of making a machine, by which they can draw fire from a variety of bodies, and even accumulate, or heap it together in ſuch quantities, that when it is diſcharged, or let off,

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off, it will make a report like a piſtol, and even kill animals.

The particulars, in which lightning and the electric fluid agree, are as follow. 1. Flaſhes of lightning are generally ſeen crooked, and waving in the air. The ſame is the electric ſpark always, when it is drawn from an irregular body, at ſome diſtance. 2. Lightning ſtrikes the higheſt and moſt pointed objects in its way, in preference to others, as high hills and trees, towers, ſpires, maſts of ſhips, points of ſpears, and the like. In like manner, all pointed conductors * receive or throw off the electric fluid more readily than thoſe that are terminated by flat ſurfaces. 3. Lightning is obſerved to take the readieſt and beſt conductor. So does electricity in the diſcharge of the Leyden phial †. For this reaſon Dr. Franklin ſuppoſes, that it would be ſafer, during a thunder ſtorm, to have one's cloaths wet than dry, as the lightning might then, in great meaſure, be tranſmitted to the ground, by the water on the outſide of the body. It is found, he ſays, that a wet rat cannot be killed by the exploſion of the electrical bottle, but that

* Conductor is a term uſed by electricians for denoting any thing that conducts the electric fire from one body to another.

† A glaſs that contains an accumulation of electric matter.

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a dry rat may. 4. Lightning burns: ſo does electricity. Dr. Franklin ſays, that he could kindle with it hard dry roſin, ſpirits unwarmed, and even wood. 5. Lightning ſometimes diſſolves metals: ſo does electricity. 6. Lightning has often been known to ſtrike people blind. And a pigeon, after a violent ſhock of electricity, by which the Doctor intended to have killed it, was obſerved to have been ſtruck blind. 7. Lightning deſtroys animal life. Animals have likewiſe been killed by the ſhock of electricity. The largeſt animals, which Dr. Franklin and his friends had been able to kill, were a hen, and a turkey which weighed about ten pounds.

To demonſtrate, in the cleareſt manner poſſible, the ſameneſs of electrical fire with the matter of lightning, Dr. Franklin, aſtoniſhing as it muſt have appeared, contrived actually to bring lightning from the heavens, by means of an electrical kite, which he raiſed, when a ſtorm of thunder was perceived to be coming on.

This kite had a pointed wire fixed upon it, by which it drew the lightning from the clouds. The lightning deſcended along the hempen ſtring that held the kite and was received by a key tied to the extremity of it. That part of the ſtring, which the

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the Doctor held in his hand, was of silk *, that the electric fire might stop at the key, and not reach his body.

He found, that the string would conduct electricity even when nearly dry, but that, when it was wet, it would conduct it quite freely; so that it would stream out plentifully from the key, at the approach of a person's finger. At this key he charged phials, and from electric fire thus obtained, he kindled spirits, and performed all the common electrical experiments.

This discovery, of the sameness of lightning and electricity, was applied by Dr. Franklin to a most useful purpose; namely, to the securing buildings from the dreadful effects of lightning in a thunder storm. With regard to thunder itself, or the sound or noise we hear, it is perfectly harmless. It is the lightning that does the mischief.

He effected this, by fixing a pointed iron rod higher than any part of the building, and joining to the lower end of it a wire, which communicated with the earth. This rod the lightning was sure to seize upon, in preference to any other part of the building, and descended along it and the wire

* Some bodies conduct the electric fire, and some do not conduct it. Silk is of the latter kind.

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till it reached the earth, where it was inſtantly diſſipated without doing any harm.

All public buildings, and eſpecially all magazines, ought to have ſuch an apparatus for defending them from lightning; and many, I believe, have.

The fire of electricity is very different from *common fire*, and operates in a very different manner. It has been known to melt a ſword in the ſcabbard, without injuring the ſcabbard itſelf; and to melt money in a man's pocket without burning his clothes. In a word, it ſeems to be of ſuch a nature, that it can eaſily penetrate through porous bodies without affecting them, and ſpends all its force upon thoſe that are hard and ſolid.

The experiment of drawing lightning from heaven, by means of an electric kite, is attended with danger. It proved fatal to Abbé Richman, who, in 1753, was killed by a flaſh of lightning, which he drew from the clouds, in an experiment he was making at Peterſburgh.

Electricity has been applied to ſome medical purpoſes, with ſo much ſucceſs, that it may now be conſidered as part of the ſcience.

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CHAP. CXXXIII.

ON THE SOUND OF THUNDER, AND THUNDER-BOLTS.

THE reaſon, why we do not hear the dreadful noiſe of the thunder, as ſoon as we ſee the lightning, is, becauſe ſound is longer in arriving to our ears, than light to our ſight.

Light moves almoſt inſtantaneouſly. Sound moves no more than 1142 feet in a ſecond. That light moves much faſter than ſound, any one may ſatisfy himſelf by obſerving a gun diſcharged at a diſtance; for he will ſee the fire long before he hears the ſound.

The continuation and repetition of the ſound is cauſed by a kind of echo formed in the clouds, to which many hard bodies upon the earth may contribute, which return thoſe rollings we hear after a great clap of thunder.

A *thunder bolt* is nothing but a more ſolid and moſt rapid flame, which, with incredible ſwiftneſs flies from the clouds to the earth, and through every thing ſtanding in its way, being interrupted by nothing. It ſometimes kills men and animals, burns and overthrows large trees and buildings, and ſets fire to every thing in its way.

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CHAP. CXXXIV.

OF WATER-SPOUTS, WHIRLWINDS AND HURRICANES.

SIGNIOR Beccaria, of Turin, thinks that electricity is the cauſe of *water-ſpouts*. To make this more evident, he firſt deſcribes the circumſtances attending the appearance of theſe ſpouts; which are as follow.

They generally appear in calm weather. The ſea ſeems to boil, and ſend up a ſmoke under them, riſing into a hill towards the ſpout. At the ſame time, perſons who have been near them have heard a rumbling noiſe.

The *ſhape* of a water-ſpout is that of a ſpeaking trumpet, the wider end being in the clouds, and the narrower end towards the ſea.

The ſize is various, even in the ſame ſpout. The colour is ſometimes inclining to white, and ſometimes to black. Their poſition is ſometimes perpendicular to the ſea, ſometimes oblique, and ſometimes the ſpout itſelf is in the form of a curve. Their continuance is very various, ſome diſappearing as ſoon as formed, and ſome continuing a conſiderable

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ſiderable time. Another he has heard of continued a whole hour.

Beccaria likewiſe ſuppoſes, that *whirlwinds* and *hurricanes* are owing to electricity, and adds, that what water-ſpouts are at ſea, whirlwinds and hurricanes are by land. They have been known to tear up trees, to throw down buildings, make caverns in the earth; and, in all theſe caſes, to ſcatter earth, ſtones, bricks, timber, &c. to a great diſtance in every direction. Great quantities of water have been left, or raiſed by them, ſo as to make a kind of deluge; and they have always been attended with a prodigious rumbling noiſe.

That theſe phænomena depend upon electricity, cannot, he ſays, but appear very probable from the nature of ſeveral of them; but the conjecture is made more probable from the following additional circumſtances.

They generally appear in months peculiarly ſubject to thunder ſtorms, and are commonly preceded, accompanied, or followed by lightning, rain, or hail. Whitiſh or yellowiſh flaſhes of light have ſometimes been ſeen, moving with prodigious ſwiftneſs about them. And, laſtly, the manner in which they terminate, exactly reſembles what might be expected from the prolongation of an electrified cloud, towards the ſea. The water and the cloud mutually

mutually attract one another. They ſuddenly contract themſelves, and diſperſe almoſt at once; the cloud riſing, and the water of the ſea under it falling to its level.

But the moſt remarkable circumſtance, and the moſt favourable to the ſuppoſition of their depending upon electricity, is, that they have been diſperſed by preſenting to them ſharp-pointed knives or ſwords. This, at leaſt, is the conſtant practice of mariners, in many parts of the world, where theſe water-ſpouts abound.

CHAP. CXXXV.

OF THE STOCKS OR PUBLIC FUNDS.

AS there are few ſubjects of converſation more general than the value of ſtocks, I ſhall here give a ſhort account of them.

By the word *ſtock* was originally meant, a particular ſum of money contributed for the eſtabliſhment of a fund, in order to enable a company to carry on a certain trade, by means of which the perſon became a partner in that trade, and received a ſhare

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a ſhare in the profit made thereby, in proportion to the money employed.

But this term has been extended farther, though improperly, to ſignify any ſum of money, which has been lent to the government, on condition of receiving a certain intereſt till the money is repaid, and which makes a part of the national debt. As the ſecurity both of the government and the public companies is eſteemed preferable to that of any private perſon; as the ſtocks are negociable and may be ſold at any time; and as the intereſt is always punctually paid when due; ſo they are thereby enabled to borrow money on a lower intereſt, than what might be obtained from lending it to private perſons, where there is often ſome danger of loſing both principal and intereſt.

But as every capital ſtock or fund of a company is raiſed for a particular purpoſe, and limited by government to a certain ſum, it neceſſarily follows, that when that fund is completed, no ſtock can be bought of the company; though ſhares, already purchaſed, may be transferred from one perſon to another. This being the caſe, there is frequently a great diſproportion between the original value of the ſhares, and what is given for them when tranſferred. For if there are more buyers than ſellers, a perſon who is indifferent about ſelling, will not

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part with his ſhare without a conſiderable profit to himſelf. On the contrary, if many are diſpoſed to ſell, and few inclined to buy, the value of ſuch ſhares will naturally fall, in proportion to the impatience of thoſe who want to turn their ſtock into ſpecie.

Theſe obſervations may ſerve to give ſome idea of the nature of that unjuſtifiable practice, called *ſtock-jobbing*. The myſtery of which conſiſts in nothing more than this. The perſons concerned in that practice, who are denominated ſtock-jobbers, make contracts to buy or ſell, at a certain diſtant time, a certain quantity of ſome particular ſtock; againſt which time they endeavour, according as their contract is, either to raiſe or lower ſuch ſtock, by ſpreading rumours, and fictitious ſtories, in order to induce people either to ſell out in a hurry, and conſequently cheap, if they are to deliver ſtock; or to become unwilling to ſell it, and conſequently to make it dearer, if they are to receive ſtock.

The perſons, who make theſe contracts, are not in general poſſeſſed of any real ſtock; and when the time comes that they are to receive or deliver the quantity they have contracted for, they only pay ſuch a ſum of money as makes the difference between the price the ſtock was at, when they made the

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the contract, and the price it happens to be at, when the contract is fulfilled. It is no uncommon thing for perſons not worth 100*l.* to make contracts, for the buying or ſelling 100,000*l.* ſtock. In the language of Exchange-alley, the buyer is in this caſe called the *Bull*, and the ſeller the *Bear*; one is for raiſing or toſſing up, and the other for lowering or trampling upon the ſtock.

Beſides theſe, there is another ſet of men, who, though of a higher rank, may properly enough come under the ſame denomination. Theſe are the great monied men, who are dealers in ſtock, and contractors with the government, whenever any money is to be borrowed. Theſe, indeed, are not fictitious, but real buyers and ſellers of ſtock; but by raiſing falſe hopes, or creating groundleſs fears, by pretending to buy or ſell large quantities of ſtock on a ſudden, by uſing the above-mentioned ſet of men as their inſtruments, and other like practices, they are enabled to raiſe or fall ſtocks one or two per cent. at pleaſure.

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CHAP. CXXXVI.

ON DIFFERENT MILES.

THERE is ſcarcely a greater variety in any thing, than in this ſort of meaſure. Not only thoſe of ſeparate countries differ, as the French from the Engliſh; but thoſe of the ſame country vary, in the different provinces, and all commonly from the ſtandard. Thus the common Engliſh mile differs from the ſtatute mile, and the French have three ſorts of leagues.

I ſhall here give the miles of ſeveral countries, compared with the Engliſh, by Dr. Halley.

The Engliſh ſtatute mile conſiſts of 1760 yards, or eight furlongs. The Ruſſian *verſt* is little more than three quarters of an Engliſh mile.

The Turkiſh, Italian, and old Roman mile is nearly one Engliſh. The Arabian ancient and modern, is about one Engliſh mile and a quarter. The Scotiſh and Iriſh mile, is about one Engliſh mile and a half.

The Indian mile is almoſt *three* Engliſh; and the Dutch, Spaniſh, and Poliſh, about *three* Engliſh miles and a *half*.

The

The German mile is more than *four* Engliſh; and the Swediſh, Daniſh, and Hungarian, from *five* to *ſix* Engliſh miles.

The French common league is near *three* Engliſh; and the Engliſh marine league is three Engliſh miles.

FINIS.

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